Interim Measures 2009 Annual Report
Former Sludge Bin Storage Area,
Rod & Wire Mill

Severstal Sparrows Point, LLC

Sparrows Point,

Maryland

January 2010

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1.0 SUMMARY

During 2009, Severstal Sparrows Point, LLC operated the groundwater pump and treat Interim Measure at the former Rod & Wire Mill Sludge Bin Storage Area at Sparrows Point in accordance with the scope and schedule submitted in the July 2000 *Work Plan for Re-Establishment of Interim Measures, Former Sludge Bin Storage Area, Rod & Wire Mill* that was approved by U. S. EPA on November 3, 2000. The interim measure tasks included:

- Maintaining institutional controls at the former *in situ* leaching area,
- Groundwater treatment system monitoring, operation and maintenance,
- Semi-annual groundwater elevation monitoring, and
- Semi-annual sampling and analysis of groundwater.

Specifics of the interim measures tasks completed in 2009 are as follows:

- Institutional controls were maintained at the former sludge bin storage area to minimize and manage activities that could disturb soils at the site. These controls consist of notice sign boundary markers and continuation of an authorization program to conduct work in the area.
- Operation and maintenance of the groundwater recovery wells, transfer pipeline and treatment process equipment located at the existing wastewater treatment facility.
- Evaluation of the groundwater pump and treat system, including documentation of treatment flow, review of semi-annual groundwater elevation data, and review of effectiveness.
- Semi-annual sampling, analysis and evaluation of the groundwater impacted by former operations at the sludge bin storage area.

A total of 6,801,611 gallons of water was extracted from the two Former Sludge Bin Storage Area groundwater pumping wells (RW15-PZM020 and RW10-PZM020) during 2009. This compares to 6,585,185 gallons extracted in 2008. The average total pumping rate for 2009

was 18,635 gallons per day (gpd), or 12.9 gallons per minute (gpm). A total of 281 pounds (lbs) of cadmium and 14,055 lbs of zinc were removed and treated during 2009. This compares to 301 pounds (lbs) of cadmium and 15,222 lbs of zinc removed in 2008. The reduction in removed masses from 2008 to 2009 is due to reduced cadmium and zinc concentrations in groundwater at the pumping wells.

Groundwater elevation data indicate groundwater drawdown with a radius of influence that captures the contamination plume in the intermediate groundwater zone (approximately 20 to 30 feet below the ground surface) at the average annual 2009 pumping rate of 7.6 gallons per minute (gpm) for recovery well RW15-PZM020 and 5.4 gpm for recovery well RW10-PZM020. The groundwater elevation data for the shallow zone (groundwater table surface to 15 feet below this surface), combined with the chemistry data, document a water table situation where contamination migration is effectively controlled in this groundwater zone. Groundwater elevation data for the deeper groundwater zone (greater than 50 feet in depth) suggest that heads in this zone may not be influenced by the pump and treat system; however, the chemistry data (further discussed below) indicate that this zone is minimally impacted. Groundwater monitoring data collected during 2009 suggests some improvement in groundwater quality as compared to 2008.

Cadmium—Cadmium concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. At most of the non-pumping wells the 2009 cadmium concentrations are similar to prior years, with the following exceptions where the cadmium concentrations are lower compared to recent prior years:

- At RW03-PZM003 (shallow zone) the 2009 4th quarter cadmium concentration (0.05 mg/l) was lower than historically has been observed.

Zinc—Zinc concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years.. At most of the non-pumping wells the 2009 zinc concentrations are similar to prior years, with the following exceptions:

- At RW07-PZ004 (shallow zone) the 2nd and 4th quarter 2009 zinc concentrations (19.0 and 33.0 mg/l, respectively) are higher than historically has been observed.

- At RW12-PZM004 (shallow zone) the 2009 2nd and 4th quarter zinc concentrations (2.3 and 1.7 mg/l, respectively) are lower than historically has been observed.

- At RW07-PZM017 (intermediate zone) the 2009 2nd and 4th quarter zinc concentrations (310 and 300 mg/l, respectively) are lower than historically has been observed.

- At RW14-PZM020 (intermediate zone) the 2009 2nd and 4th quarter zinc concentrations (150 and 260 mg/l, respectively) are lower than historically has been observed.

- At TS04-PZM023 (intermediate zone) the 2nd quarter 2009 zinc concentration (4.0 mg/l) is lower than lower than historically has been observed.

The Proposed Operating Plan for 2010 is to: maintain institutional controls at the former storage area, continue operation, maintenance, and monitoring of the groundwater pump and treat system and complete semi-annual monitoring of groundwater consistent with procedures outlined in the approved July 2000 Work Plan and as modified in this report.

2.0 SUMMARY OF WORK PLAN FOR INTERIM MEASURES

This section summarizes the July 2000 Work Plan for Re-Establishment of Interim Measures:

- The work plan detailed the use of institutional controls for soils to establish a "Restricted Work Area" to control the exposure of on-site workers to soils in the Former Sludge Bin Storage Area.
- Groundwater monitoring network improvements were proposed including the use of 32 wells for monitoring the performance of the groundwater pump and treat system. This monitoring network (excluding well TS04-PZM007 destroyed in 2003) was to be used to collect water level and groundwater quality data.
- A groundwater pump and treat system was proposed that was subsequently installed and began operation in 2001. The groundwater pump and treat system consists of two intermediate depth zone recovery wells (RW10-PZM020 and RW15-PZM020) that are each pumped at a rate of between 5.0 and 12.9 gallons per minute (gpm) during operation. The expected normal operating rate for the treatment plant was set at a combined rate of 8.0 to 12.0 gpm with a maximum design flow of 25 gpm. Recovered groundwater is transported via a pipeline to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) for subsequent treatment and discharge in accordance with the NPDES permit requirements for the facility.

3.0 MONITORING RESULTS FOR 2009

3.1 Groundwater Pump and Treat System Evaluation

The groundwater pump and treat system was evaluated with regard to: 1) the water levels measured in the various water bearing zones, and 2) the effectiveness of this system with respect to the mass of cadmium and zinc removed from groundwater.

3.1.1 Semi-Annual Water Level Monitoring

During 2009 water-level measurements for routine operations were manually measured semi-annually (April and October 2009) in all existing monitoring wells. A summary of the April and October water level measurements (depth to water and water elevation) is presented in Table 3-1.

The groundwater elevation data are also graphically presented as groundwater elevation contour maps in Figures 3-1 through 3-6. The first three of these six figures represent the April 2009 data for the shallow, intermediate and deep water bearing zones. The intermediate water bearing zone is pumped and is therefore also referred to as the intermediate pumping zone. The last three of these six figures represent the October 2009 data for the same water bearing zones.

The shallow water bearing zone (water table) includes piezometers screened to depths of approximately 15-feet below ground surface; the intermediate water bearing zone includes piezometers screened from approximately 20- to 30-foot depths; and the deep water bearing zone is defined as those piezometers screened from approximately 50- to 75-feet below ground surface. The water level results for each of these zones are discussed below.

Shallow Water Table Zone

Figures 3-1 and 3-4 present the groundwater elevation contour maps for the shallow water table zone, corresponding to the April and October 2009 time periods, respectively, when the underlying zone (intermediate pumping zone) was being pumped.

Figure 3-1 (April) indicates elevated groundwater centered at RW10-PZM004, roughly coincident with one of the intermediate zone pumping wells (RW10-PZM020). The elevated water table may be related to the movement and infiltration of surface water. As a result of the elevated water table at RW10-PZM004, the shallow zone groundwater movement in the area north and east of RW10-PZM004 (proximity of the Rod & Wire Mill Site) is inferred to be north-northeastward (away from Bear Creek). West of RW10-PZM004 inferred shallow zone groundwater movement is westward. The groundwater chemistry data (see Section 3.2 chemistry discussion) reveal that elevated zinc and cadmium concentrations in shallow groundwater are primarily associated with the area east of RW10-PZM004 and, thus, are associated with shallow groundwater flow that is away from Bear Creek. At the western edge of the monitored shallow zone (near TS04-PDM004) shallow groundwater is inferred to be flowing toward Bear Creek. However, at this location and in nearby near-shore wells RW19-PZP000 and RW20-PZM000 both the cadmium and zinc concentrations in shallow groundwater are predominantly trace or non-detect (see Section 3.2 chemistry discussion).

Figure 3-4 presents the shallow groundwater table contour map based on the October 2009 water table elevations. Shallow groundwater flow directions inferred from Figure 3-4 near RW10-PZM004 (and the intermediate zone pumping well) are similar to those described above for April 2009, except that the area of westward flow is proximate to the location of TS04-PDM004.

Intermediate Pumping Zone

Figures 3-2 and 3-5 present groundwater elevations within the intermediate pumping zone in April 2009 and October 2009, respectively, when this zone was being pumped.

Figure 3-2 (April) indicates significant drawdown surrounding the two pumping wells (RW15-PZM020 and RW10-PZM020) that comprise the groundwater recovery system. This system is maintaining a broad zone of influence extending from the pumping wells for a distance of at least 300 feet. This zone of influence is somewhat elongated and more extensive in an east to west direction. The zone of influence extends to Bear Creek to the west and beyond the eastern edge of the former Rod and Wire Mill to the east.

Figure 3-5 (October) indicates a similar situation as discussed in the preceding paragraph for the April time frame, i.e. a broad zone of influence surrounding the groundwater recovery system.

Deep Zone

Figures 3-3 and 3-6 present the groundwater elevation contour maps for the deep water bearing zone, corresponding to the April and October 2009 time periods, respectively, when the overlying zone (intermediate pumping zone) was being pumped.

Figure 3-3 (April) indicates a northwesterly decrease in water levels, inferring northwestward groundwater flow within the deep water bearing zone. Pumping the intermediate zone does not appear to affect the deep water bearing zone. Figure 3-6 (October) indicates a similar situation as observed in April, except that ‘northwesterly’ has become ‘westerly’.

Comparison of 2009 head potentials between the deep and intermediate groundwater zones at locations RW10 and RW19 showed lower head potentials in the intermediate versus deep zone. The significant difference in the head potentials between the intermediate and deep zones indicates confinement of the lower zone at these locations.

3.1.2 Comparison of Water Levels in 2008 and 2009

The 2009 water levels (2nd quarter and 4th quarter) were compared to the 2008 2nd and 4th quarter water levels and the following observations are made:

- Shallow water bearing zone—2nd quarter water levels are very similar between 2008 and 2009.

- Intermediate pumping zone—2nd and 4th quarter water levels are very similar between 2008 and 2009.

- Deep water bearing zone—2nd and 4th water levels are very similar between 2008 and 2009.

Overall, the above observations indicate that the groundwater flow directions and the influence of pumping are similar between 2008 and 2009.

3.1.3 Evaluation of Pump and Treat System Effectiveness

In 2009, a total of 6,801,611 gallons of water were extracted from the Former Sludge Bin Storage Area pumping wells and treated at the HCWWTP. This contrasts to a total volume of 6,585,185 gallons that were pumped and treated in 2008. The average pumping rate for the pump and treat system for 2009 was 18,635 gpd, or 12.9 gpm. Pumping rates of approximately 7.6 gpm were achieved in recovery well RW15-PZM020 and 5.4 gpm in RW10-PZM020. These pumping rates appear to effectively capture the most impacted groundwater beneath the Former Sludge Bin Storage Area, as revealed by Figures 3-1 through 3-6, discussed above.

A total of 281 pounds (lbs) of cadmium and 14,055 lbs of zinc were removed and treated from the Rod & Wire Mill area in 2009. This compares to treated amounts of 301 lbs of cadmium and 15,222 lbs of zinc in 2008. The decrease in removed masses in 2009 is due to the reduced volume of water extracted from RW-10 (due to some down time associated with

pump replacement) which has much higher zinc and cadmium concentrations compared to extraction well RW-15 (thus, the 2009 reduction in metals removal from RW-10 wasn't compensated for by the increase in 2009 groundwater extraction from the less contaminated well RW-15 or by the slight increase in extraction well metals concentrations between 2008 and 2009):

- **Treated water volume (gal):**
  - RW10-PZM020: 3,296,000 (2008); 2,816,310 (**2009**)
  - RW15-PZM020: 3,288,468 (2008); 3,985,301 (**2009**)

The averaged April and October metals concentrations were:

- **Average Cadmium and Zinc Concentrations:**
  - RW10-PZM020:
    - Cd: 9.45 ppm (2008); 9.9 ppm (**2009**)
    - Zn: 520 ppm (2008); 545 ppm (**2009**)
  - RW15-PZM020:
    - Cd: 1.5 ppm (2008); 1.5 ppm (**2009**)
    - Zn: 33.5 ppm (2008); 37.5 ppm (**2009**)
- **Treated mass (lbs):**
  - RW10-PZM020:
    - Cd: 260 (2008); 233 (**2009**)
    - Zn: 14,303 (2008); 12,808 (**2009**)
  - RW15-PZM020:
    - Cd: 41 (2008); 48 (**2009**)
    - Zn: 919 (2008); 1,247 (**2009**)

The pump and treat system is removing significant amounts of cadmium and zinc from groundwater within the intermediate water bearing zone at the current pumping rates, and it is controlling groundwater flow and associated cadmium and zinc migration within the shallow zone and the intermediate water bearing zone.

3.2 Groundwater Chemistry Data

Groundwater chemistry data were collected on a semi-annual basis during the 2nd and 4th quarters. The locations of the wells are shown in Figure 3-7. The sampling occurred during the following months of 2009:

- April 2009
- October/November 2009

Appendix A presents groundwater monitoring documentation for the 2nd and 4th quarters, consisting of water level measurements and purge records. The samples were collected using low-flow peristaltic pumps after stabilization of field parameters, and were then submitted to the laboratory for analysis for total cadmium and zinc in accordance with the November 1999 DCQAP. The field parameters were pH, conductivity, temperature, dissolved oxygen, and oxidation-reduction potential.

Tables 3-2 and 3-3 present the data from 2009 for total cadmium and zinc, respectively. The tables also show semi-annual data from 2000 through 2008. A comparison of the 2009 data with data from previous years indicates the following:

Cadmium—Cadmium concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. At most of the non-pumping wells the 2009 cadmium concentrations are similar to prior years, with the following exceptions where the cadmium concentrations are lower compared to recent prior years:

- At RW03-PZM003 (shallow zone) the 2009 4th quarter cadmium concentration (0.05 mg/l) was lower than historically has been observed.

Zinc—Zinc concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years.. At most of the non-pumping wells the 2009 zinc concentrations are similar to prior years, with the following exceptions:

- At RW02-PZM020 (intermediate zone) the 4th quarter 2009 zinc concentration (800 mg/l) was lower than the 2008 concentration (2,200 mg/l) and this 2009 concentration is lower than historically observed.

- At RW07-PZ004 (shallow zone) the 2nd and 4th quarter 2009 zinc concentrations (19.0 and 33.0 mg/l, respectively) are higher than historically has been observed.

- At RW12-PZM004 (shallow zone) the 2009 2nd and 4th quarter zinc concentrations (2.3 and 1.7 mg/l, respectively) are lower than historically has been observed.

- At RW07-PZM017 (intermediate zone) the 2009 2nd and 4th quarter zinc concentrations (310 and 300 mg/l, respectively) are lower than historically has been observed.

- At RW14-PZM020 (intermediate zone) the 2009 2nd and 4th quarter zinc concentrations (150 and 260 mg/l, respectively) are lower than historically has been observed.

- At TS04-PZM023 (intermediate zone) the 2nd quarter 2009 zinc concentration (4.0 mg/l) is lower than lower than historically has been observed.

All of the analytical results from the most recent sampling event (4th quarter 2009) are depicted in plan view at the well locations in Figures 3-8 through 3-13. These figures indicate that the highest cadmium and zinc concentrations are in monitoring wells located near and east-northeast of pumping well RW10-PZM020.

3.3 2009 Operations and Maintenance

Daily pumping records for the groundwater pump and treat system from January through December 2009 are provided in Appendix B. A summary of isolated operational outages which occurred in 2009 is provided in Appendix C. Overall, the groundwater treatment system operated as intended.

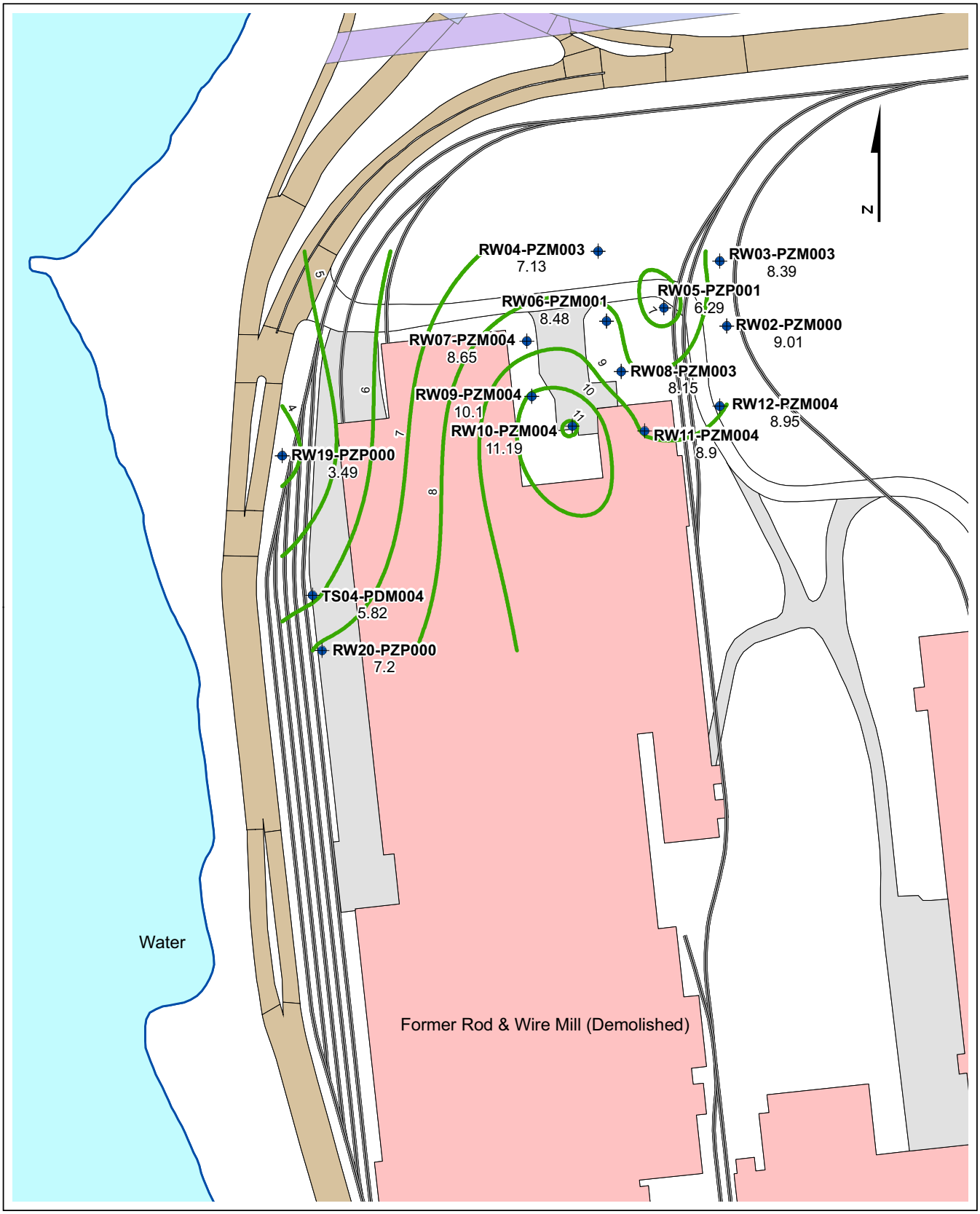
4.0 PROPOSED OPERATING PLAN FOR 2009

The Proposed Operating Plan for 2010 includes the following requirements:

- Operation, maintenance and monitoring of the groundwater pump and treat system on a year round basis;
- Semi-annual monitoring of groundwater quality, including sampling and analysis for total cadmium and zinc from 31 monitoring wells; and
- Semi-annual groundwater level measurements and evaluation of groundwater flow characteristics;

Thirty-one wells in the monitoring network are proposed to be used to collect bi-annual groundwater samples for analysis of cadmium and zinc in 2010. Sampling and analysis will be performed at 14 shallow wells, 13 intermediate wells, and 4 deep wells located in the general area of the former Sludge Bin Storage Area. Sampling, analysis, and data validation will be performed in accordance with the November 1999 DCQAP. Water-level measurements will be collected semi-annually in conjunction with the sampling and analysis program. The routine bi-annual water level measurements will be performed manually in all 31 wells in the monitoring network.

FIGURES



Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 100 200 400 Feet

Figure 3-1
Shallow Well Water Level Elevation
Contour Map, April 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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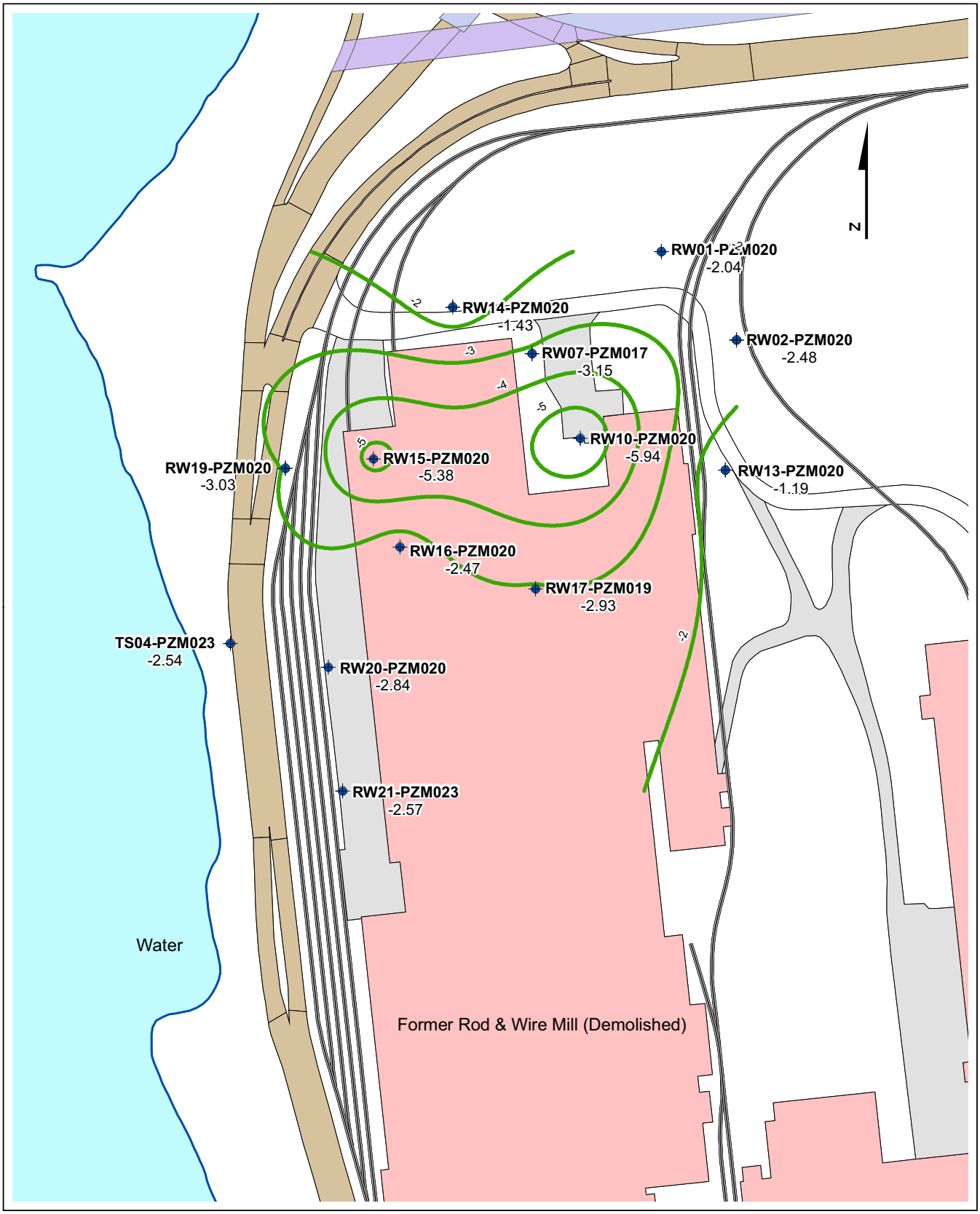

Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 105 210 420 Feet

Figure 3-2
Intermediate Well Water Level Elevation
Contour Map, April 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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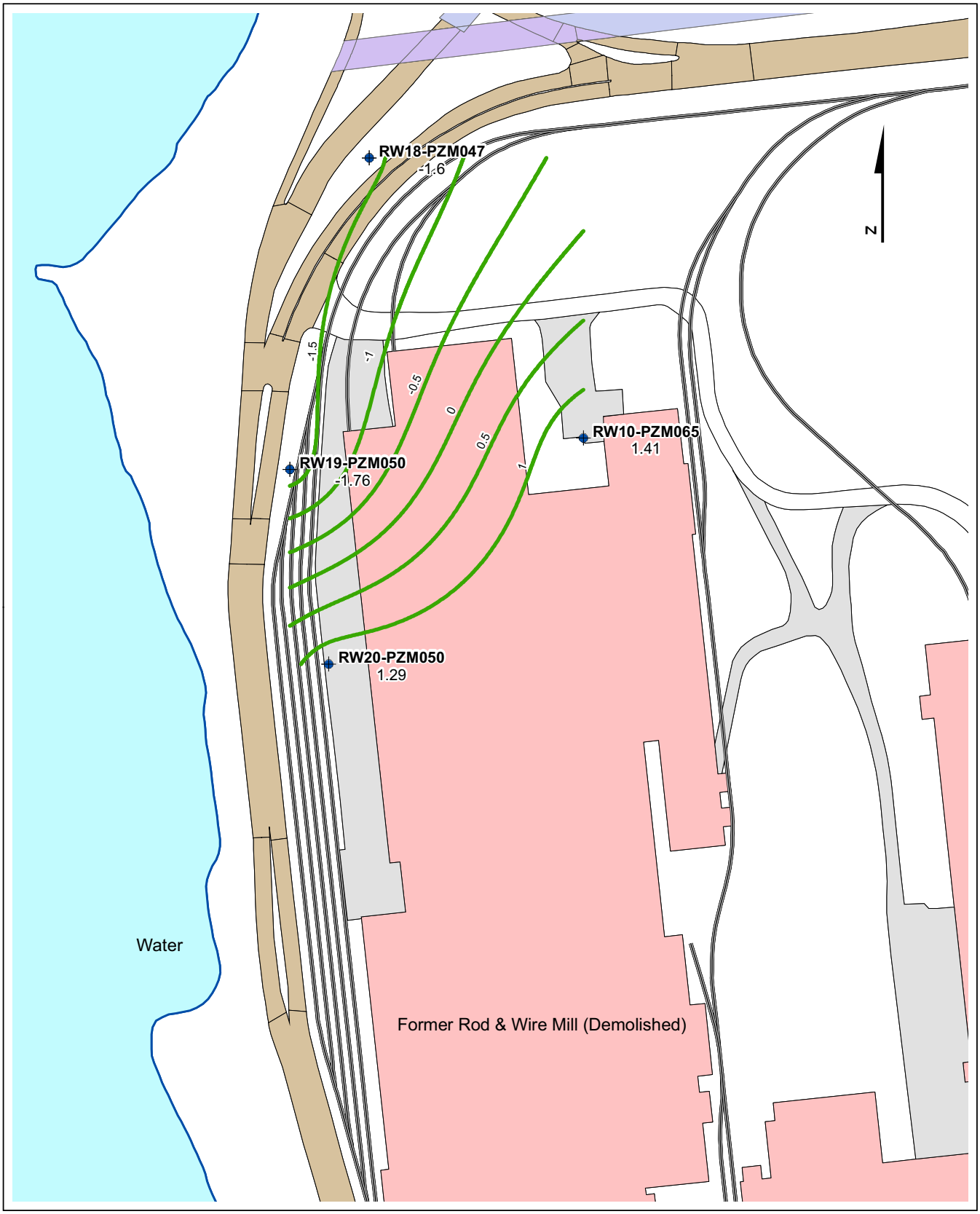

Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 100 200 400 Feet

Figure 3-3
Deep Well Water Level Elevation
Contour Map, April 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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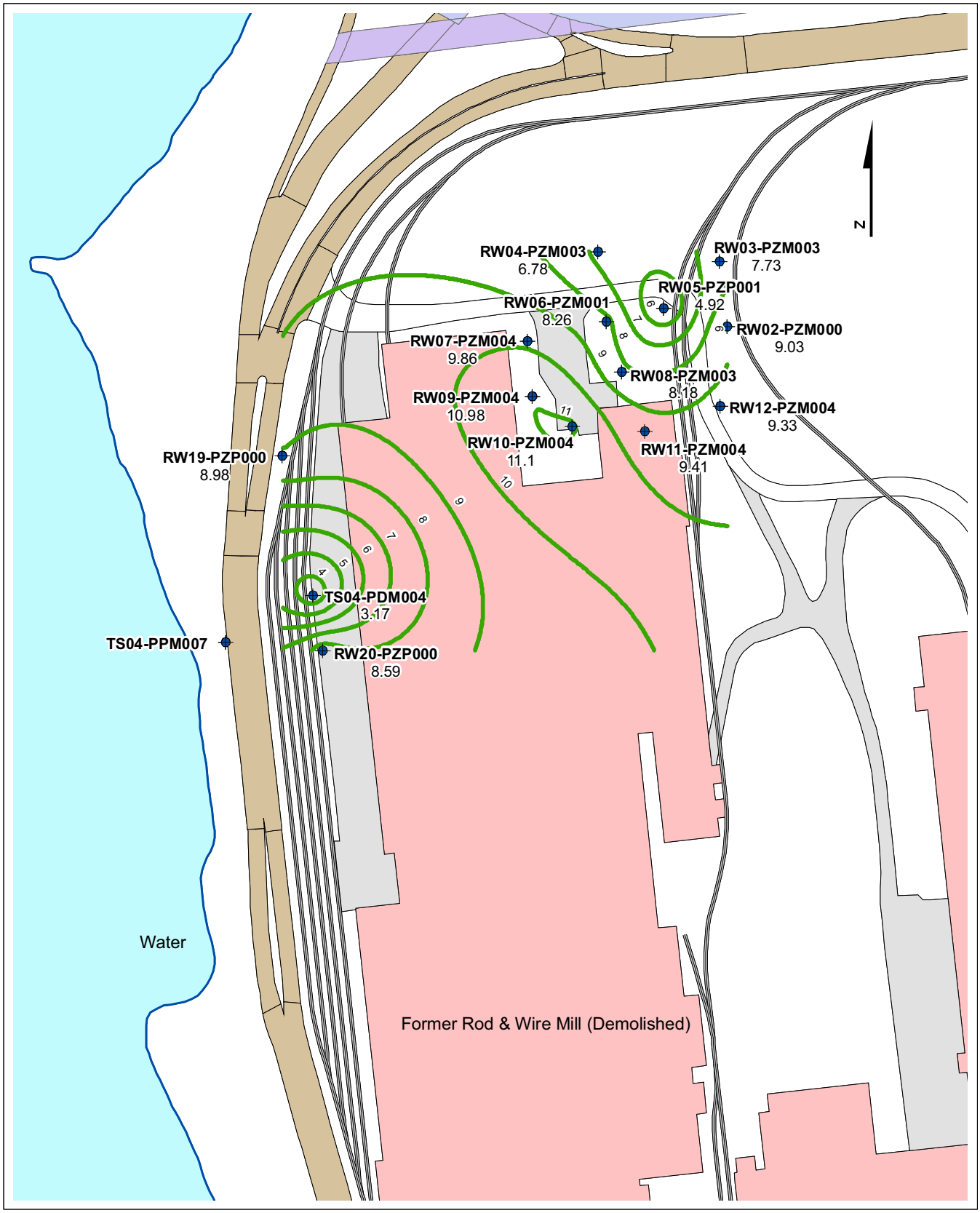

Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 100 200 400 Feet

Figure 3-4
Shallow Well Water Level Elevation
Contour Map, October 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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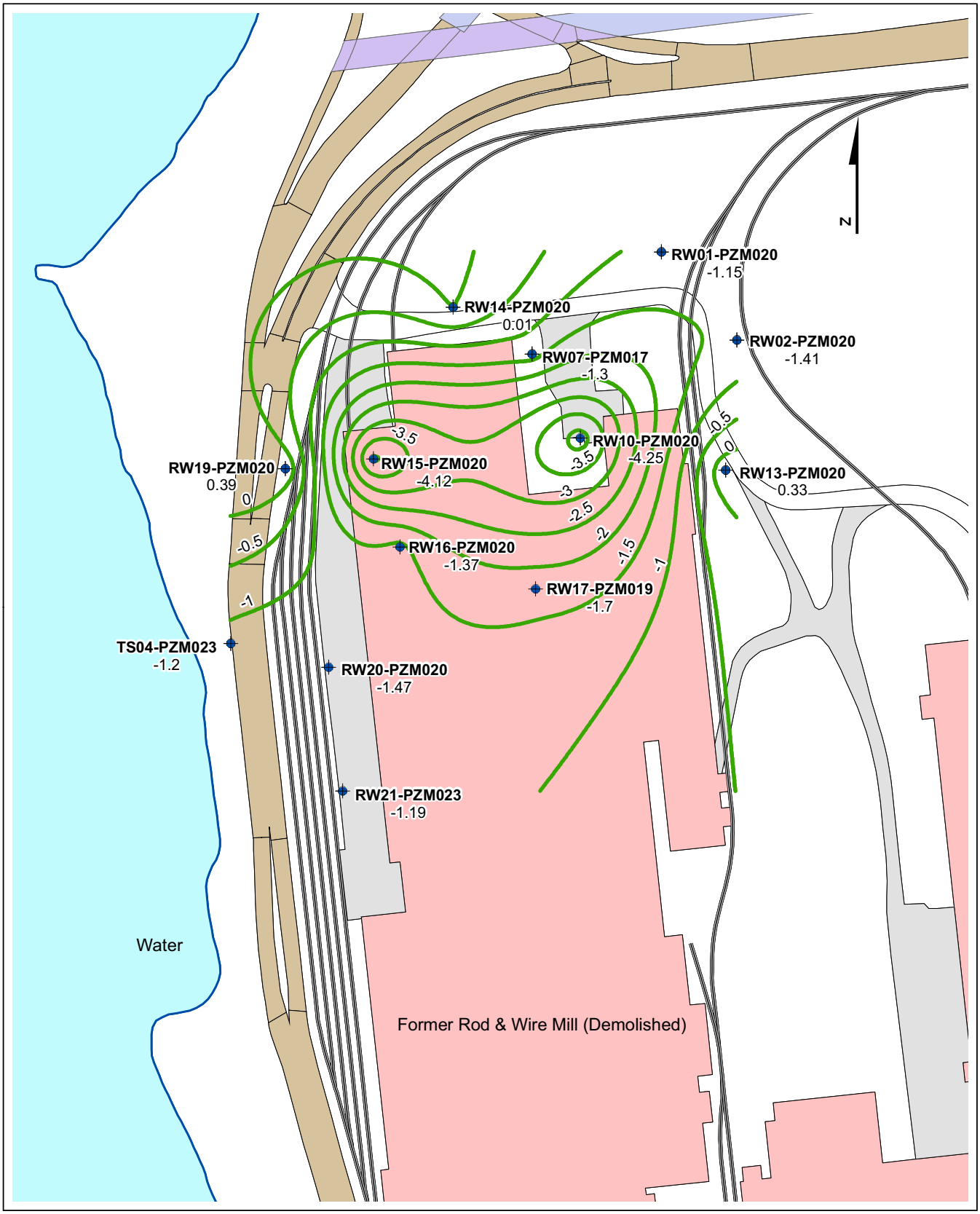

Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 100 200 400 Feet

Figure 3-5
Intermediate Well Water Level Elevation
Contour Map, October 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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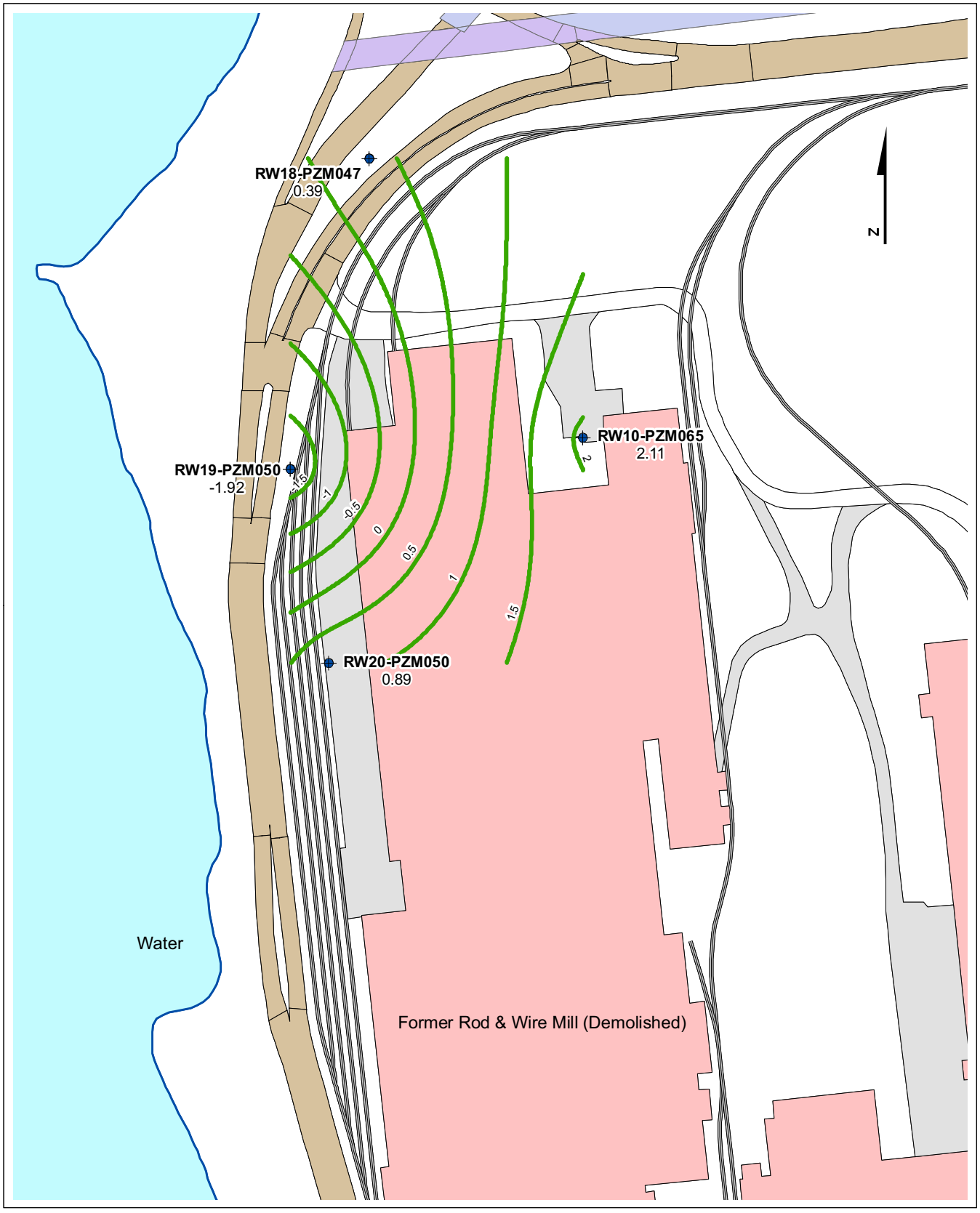

Legend

- Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

0 100 200 400 Feet

Figure 3-6
Deep Well Water Level Elevation
Contour Map, October 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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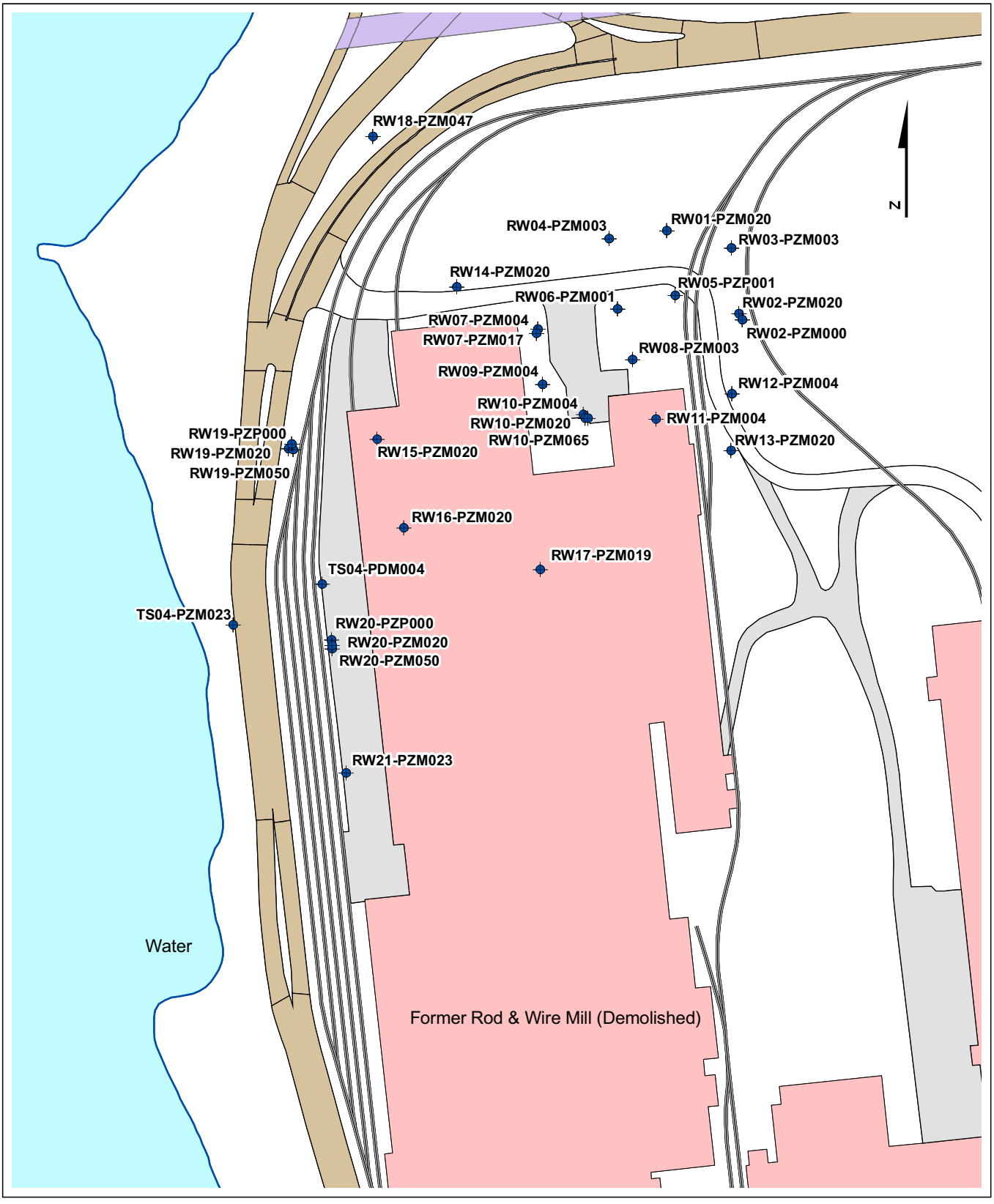

Legend

Rod and Wire Mill 2008 Report Data Event

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

Figure 3-7
Locations of Wells

Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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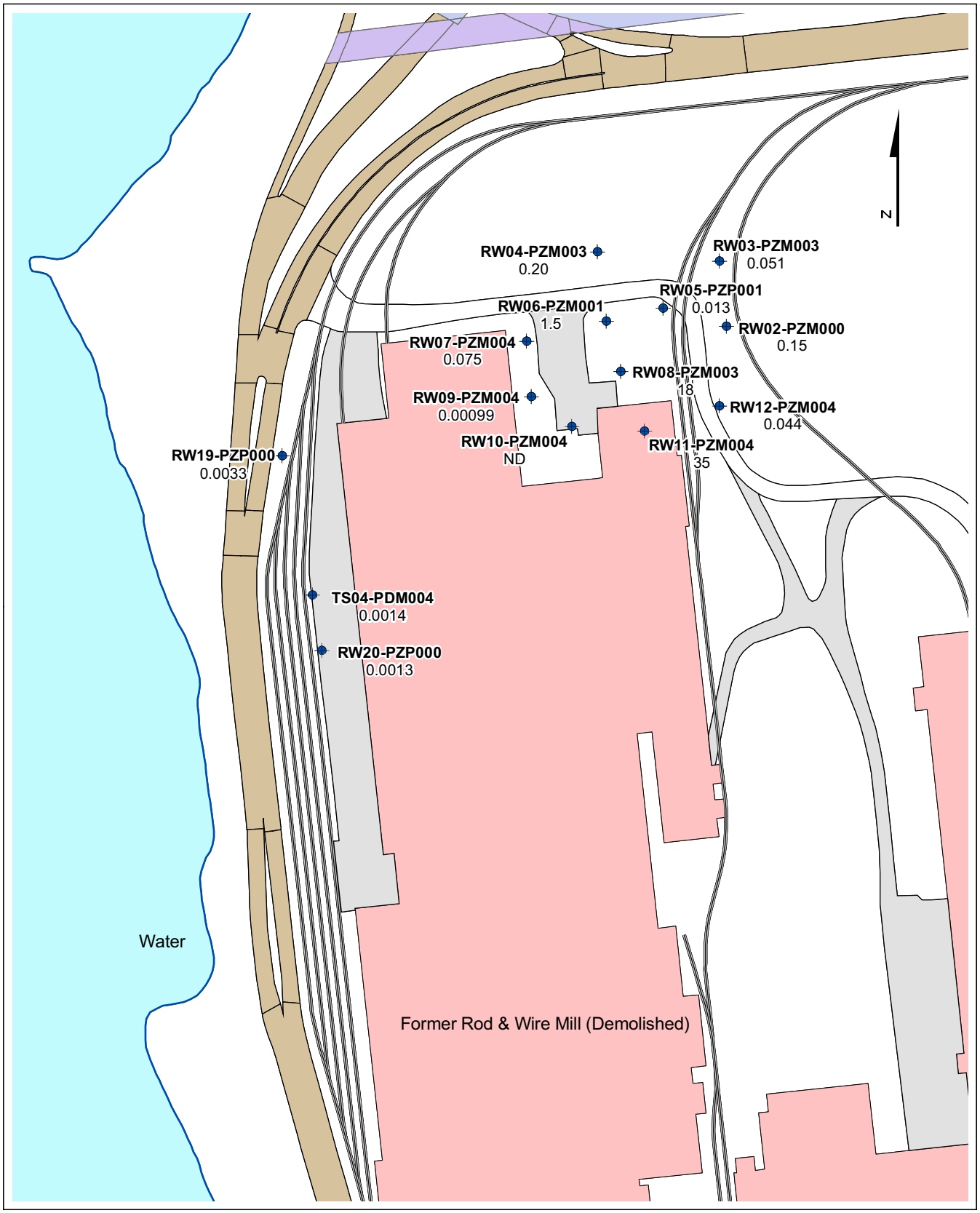

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

Rod and Wire Mill 2009 Report Data Event
Concentrations for all except RW19-PZP000 are from October 2009;
concentration for RW19-PZP000 is from November 2009.
(Concentrations in mg/L; ND = Not Detected)

Figure 3-8
Cadmium Concentrations in Shallow
(Water Table) Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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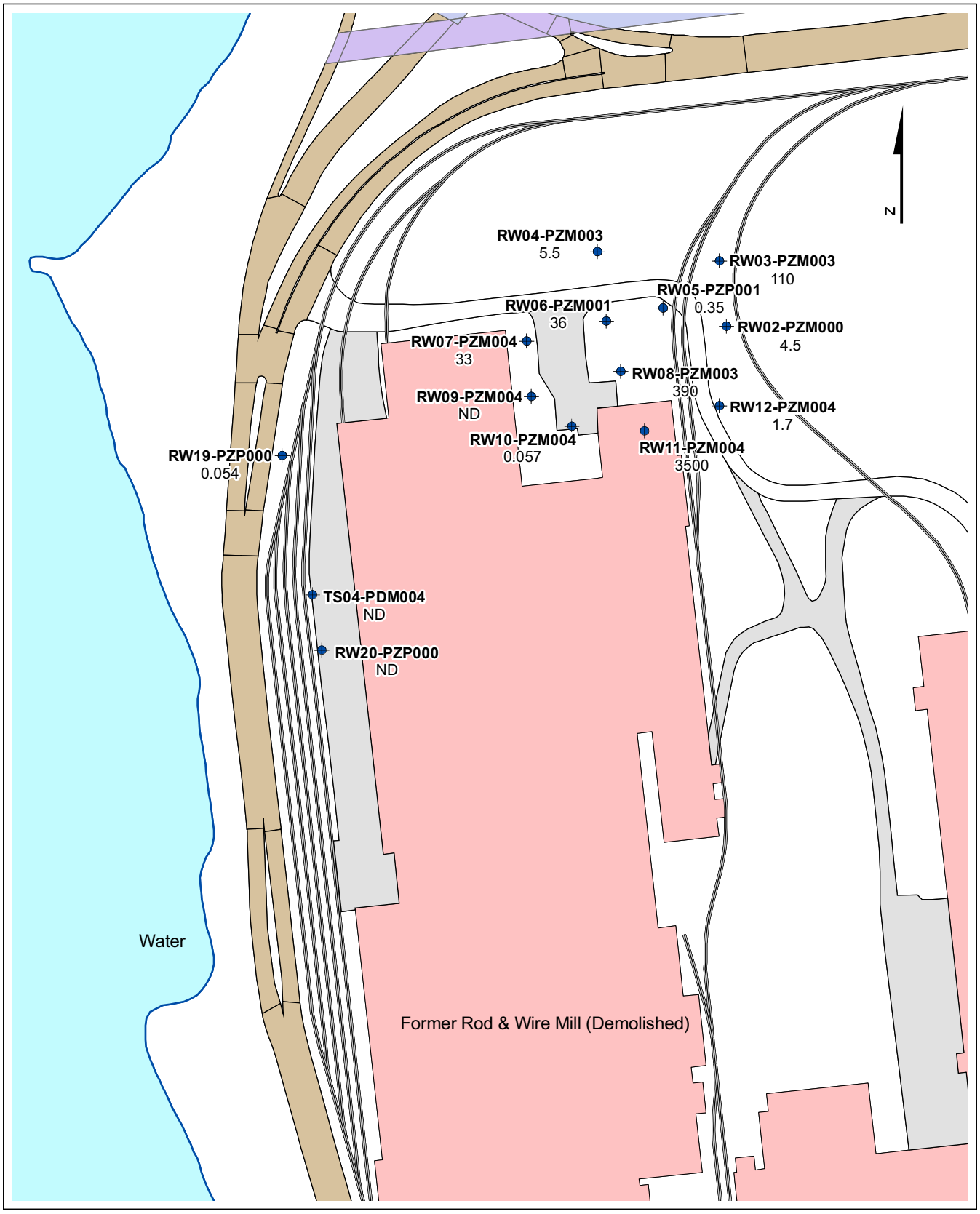

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

Rod and Wire Mill 2009 Report Data Event
Concentrations for all except RW19-PZP000 are from October 2009; concentration for RW19-PZP000 is from November 2009.
(Concentrations in mg/L; ND = Not Detected)

0 100 200 400 Feet

Figure 3-9
Zinc Concentrations in Shallow (Water Table) Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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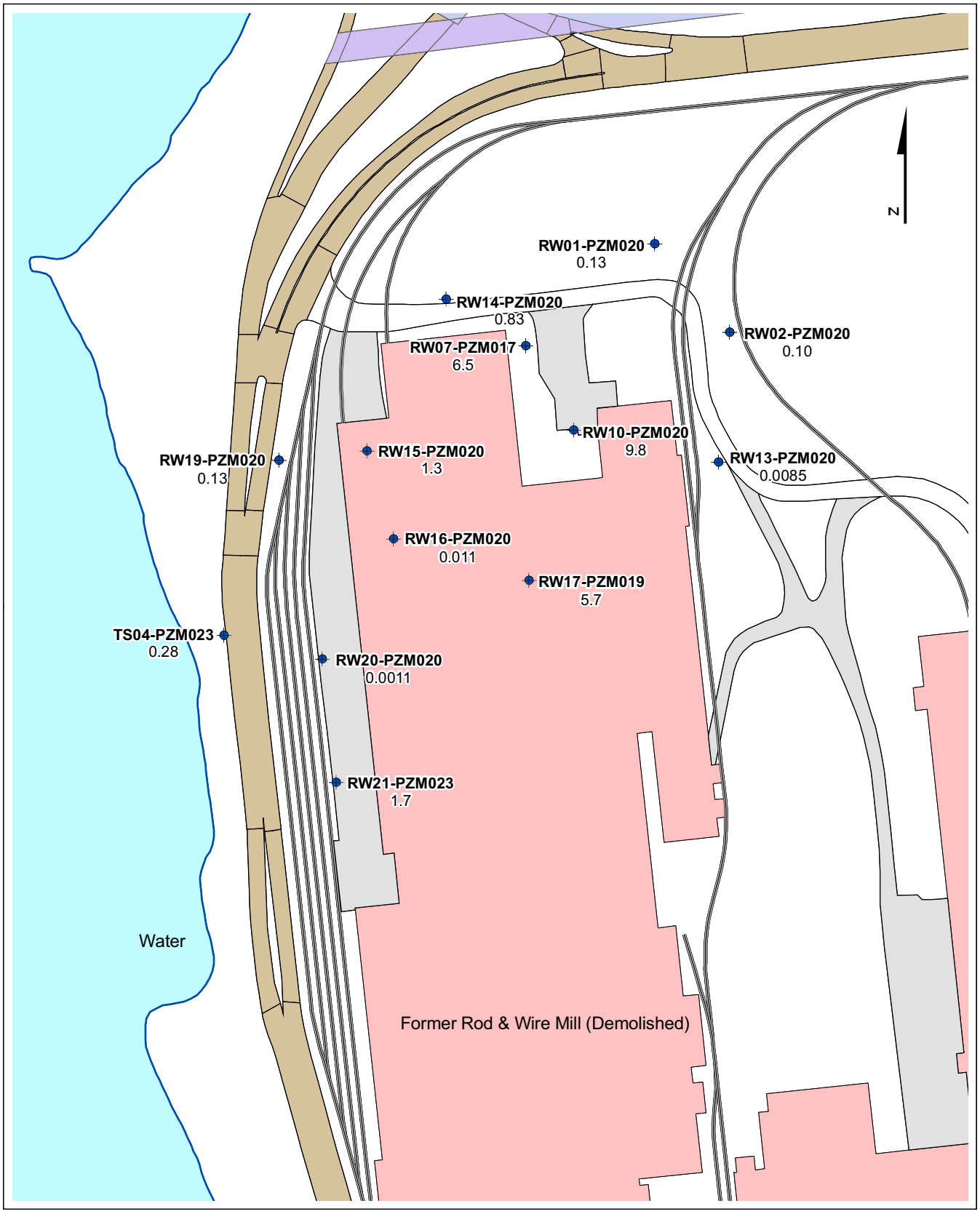

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

Rod and Wire Mill 2009 Report Data Event
Concentrations for all except RW19-PZP020 are from October 2009;
concentration for RW19-PZP020 is from November 2009.
(Concentrations in mg/L; ND = Not Detected)

Figure 3-10
Cadmium Concentrations in
Intermediate Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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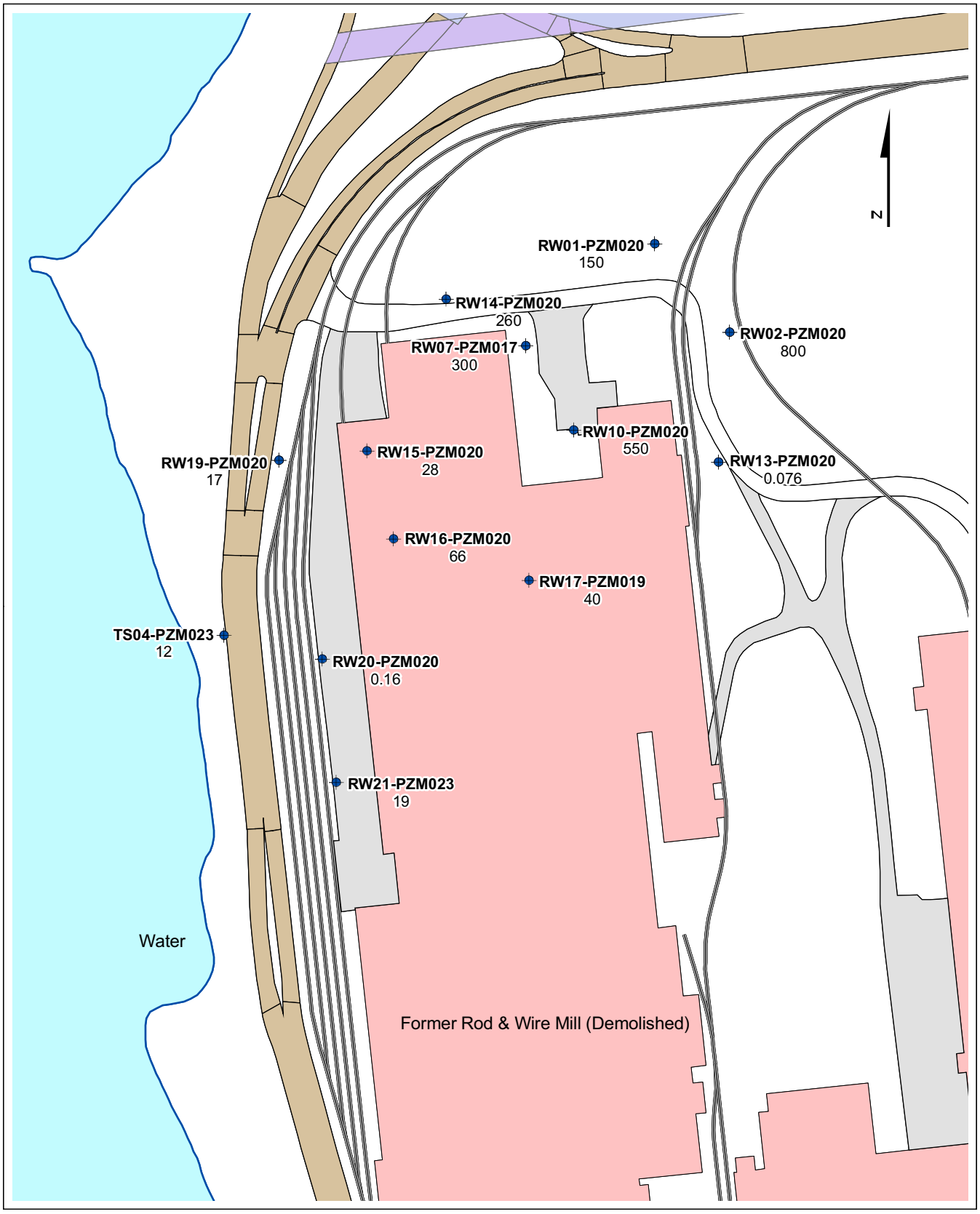

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

Rod and Wire Mill 2009 Report Data Event
Concentrations for all except RW19-PZP020 are from October 2009;
concentration for RW19-PZP020 is from November 2009.
(Concentrations in mg/L; ND = Not Detected)

Figure 3-11
Zinc Concentrations in
Intermediate Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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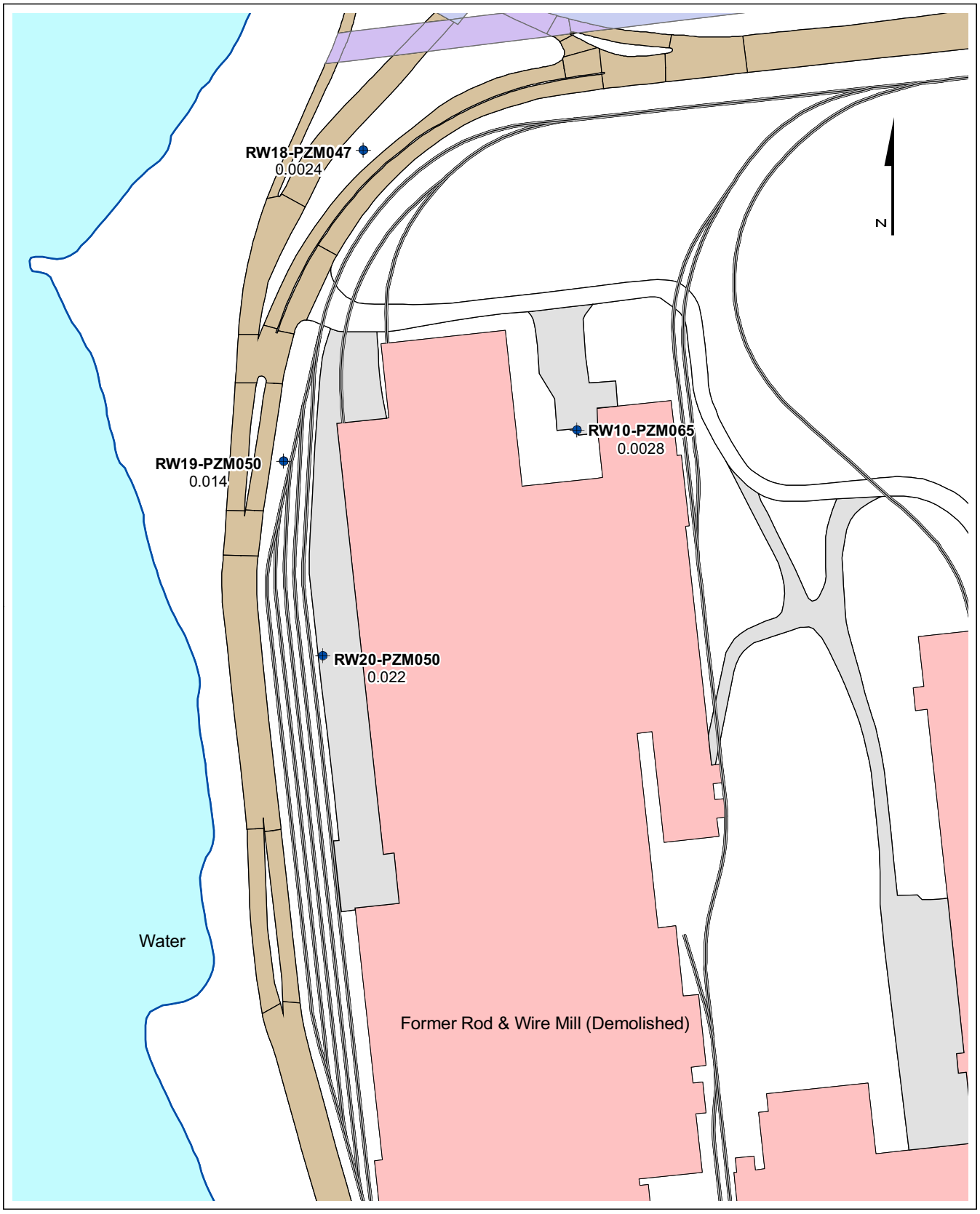

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

Rod and Wire Mill 2009 Report Data Event
Concentrations for all except RW18-PZM047 and RW19-PZM050 are from October 2009;
concentrations for RW18-PZM047 and RW19-PZM050 are from November 2009.
(Concentrations in mg/L; ND = Not Detected)

Figure 3-12
Cadmium Concentrations in
Deep Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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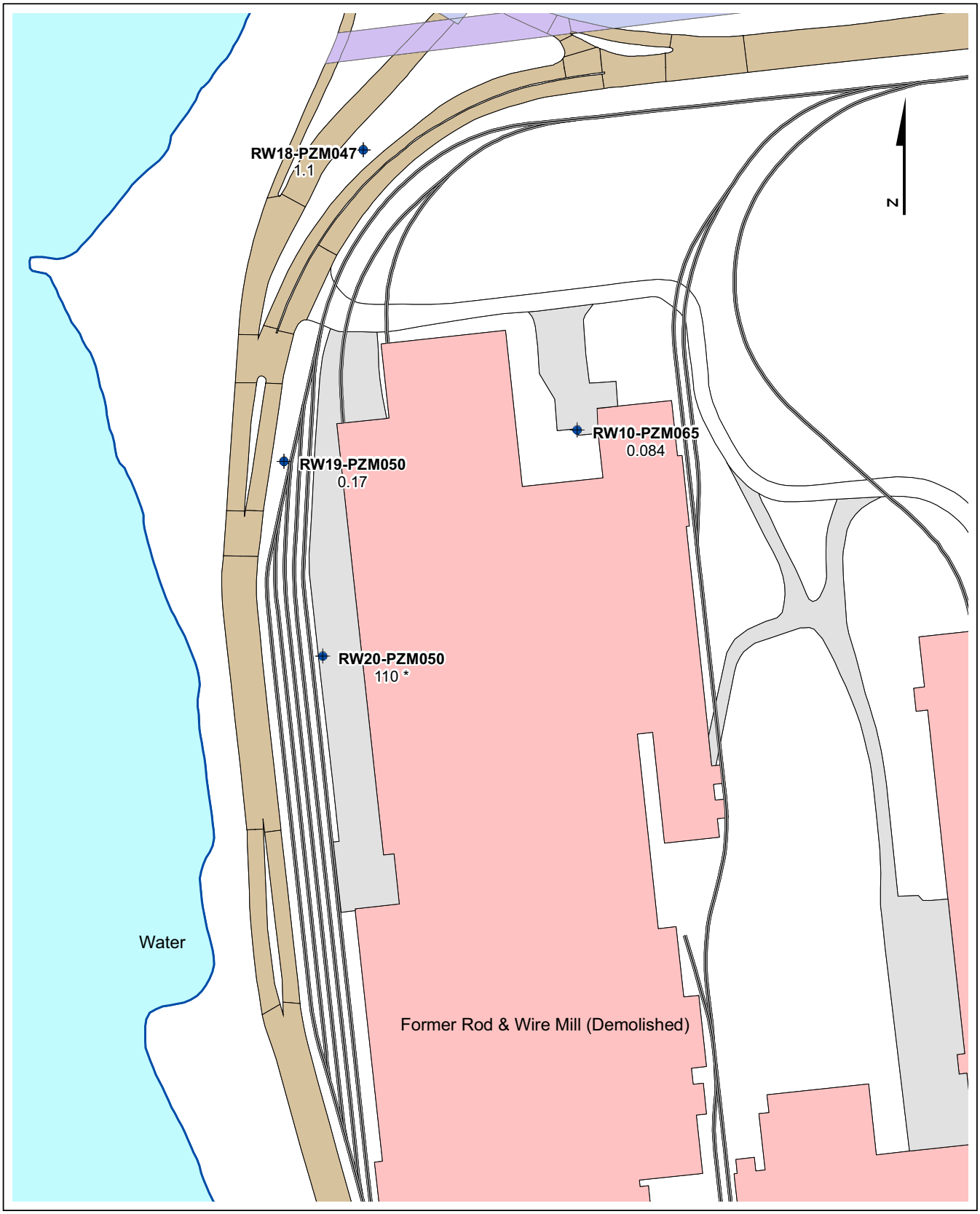

Legend

- Test Stations (Well ID)
- Shore Line
- Railroads

0 100 200 400 Feet

NOTES: Rod and Wire Mill 2009 Report Data Event
* The reported concentration doesn't match historic values, which typically are less than 1 mg/L, and is considered to be an error in sampling/reporting convention for this well.
Concentrations for RW10-PZM065 and RW20-PZM050 are from October 2009;
concentrations for RW18-PZM047 and RW19-PZM050 are from November 2009.
(Concentrations in mg/L)

Figure 3-13
Zinc Concentrations in
Deep Groundwater
October/November 2009
Former Rod & Wire Mill
Mittal Steel, Sparrows Point, MD

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TABLES

Table 3-1
2009 Water Level Elevation Data

Well Number	Top-of-Casing Elevation (ft)	April 2009			October 2009		
		Date	Depth to Water (ft)	Water Level Elevation (ft)	Date	Depth to Water (ft)	Water Level Elevation (ft)
RW01-PZM020	12.72	4/21/2009	13.61	-0.89	10/27/2009	13.87	-1.15
RW02-PZM000	12.37	4/21/2009	2.21	10.16	10/27/2009	3.34	9.03
RW02-PZM020	13.00	4/21/2009	14.33	-1.33	10/27/2009	14.41	-1.41
RW03-PZM003	10.83	4/21/2009	1.29	9.54	10/27/2009	3.10	7.73
RW04-PZM003	11.09	4/21/2009	2.81	8.28	10/27/2009	4.31	6.78
RW05-PZP001	11.04	4/21/2009	3.60	7.44	10/27/2009	6.12	4.92
RW06-PZM001	12.17	4/21/2009	2.54	9.63	10/27/2009	3.91	8.26
RW07-PZM004	15.27	4/21/2009	5.47	9.80	10/27/2009	5.41	9.86
RW07-PZM017	12.95	4/21/2009	14.95	-2.00	10/27/2009	14.25	-1.30
RW08-PZM003	11.35	4/21/2009	2.05	9.30	10/27/2009	3.17	8.18
RW09-PZM004	15.22	4/21/2009	3.97	11.25	10/27/2009	4.24	10.98
RW10-PZM004	12.34	4/21/2009	0.00	12.34	10/27/2009	1.24	11.10
RW10-PZM020	12.46	4/21/2009	17.25	-4.79	10/27/2009	16.71	-4.25
RW10-PZM065	12.34	4/21/2009	9.78	2.56	10/27/2009	10.23	2.11
RW11-PZM004	15.35	4/21/2009	5.30	10.05	10/27/2009	5.94	9.41
RW12-PZM004	15.37	4/21/2009	5.27	10.10	10/27/2009	6.04	9.33
RW13-PZM020	14.62	4/21/2009	14.66	-0.04	10/27/2009	14.29	0.33
RW14-PZM020	15.15	4/21/2009	15.43	-0.28	10/27/2009	15.14	0.01
RW15-PZM020	12.70	4/21/2009	16.93	-4.23	10/27/2009	16.82	-4.12
RW16-PZM020	13.84	4/21/2009	15.16	-1.32	10/27/2009	15.21	-1.37
RW17-PZM019	13.67	4/21/2009	15.45	-1.78	10/27/2009	15.37	-1.70
RW18-PZM047	15.68	4/21/2009	16.13	-0.45	10/27/2009	15.29	0.39
RW19-PZM020	13.49	4/21/2009	15.37	-1.88	10/27/2009	13.10	0.39
RW19-PZM050	12.99	4/21/2009	13.60	-0.61	10/27/2009	14.91	-1.92
RW19-PZM000	13.49	4/21/2009	8.85	4.64	10/27/2009	4.51	8.98
RW20-PZM020	13.47	4/21/2009	15.16	-1.69	10/27/2009	14.94	-1.47
RW20-PZM050	13.03	4/21/2009	10.59	2.44	10/27/2009	12.14	0.89
RW20-PZP000	12.82	4/21/2009	4.47	8.35	10/27/2009	4.23	8.59
RW21-PZM023	12.91	4/21/2009	14.33	-1.42	10/27/2009	14.10	-1.19
TS04-PDM004	13.71	4/21/2009	6.74	6.97	10/27/2009	10.54	3.17
TS04-PPM007*	10.22	NM	NM	NM	NM	NM	NM
TS04-PZM023	10.09	4/21/2009	11.48	-1.39	10/27/2009	11.29	-1.20

NM- No Measurement

* Gascoyne report indicates well was destroyed in 2003, possibly by a plow.

Table 3-2
Summary of Cadmium Monitoring Data for 2009 and Comparison with Prior Years

		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		
New Well Designation	**Former Well Designation**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**UNITS**
Shallow (Water Table) Monitoring Wells																						
RW02-PZM000	RW-3	0.3	0.48	0.36	0.67	0.47	0.29	0.29	0.067	0.17	0.21	0.34	0.26	0.12	0.034	0.47	0.03	0.057	0.30	0.17	0.15	mg/L
RW03-PZM003	RW-92	5.3	4.7	6.5	8.6	4.1	3.9	7.8	8.3	7.7	6.6	6.6	6.2	5.7	0.94	4.1	0.4	0.21	0.30	0.28	0.05	mg/L
RW04-PZM003	RW-91	0.44	3.4	0.57	0.52	0.31	0.32	0.55	0.71	0.73	0.9	0.67	0.73	0.24	0.72	0.4	0.49	0.69	0.18	0.38	0.20	mg/L
RW05-PZP001	RW-96	0.01	0.012	0.02	0.20	0.1	0.15	0.039	0.019	0.061	0.18	0.041	0.11	0.076	0.049	0.088	0.02	0.11	0.069	0.028	0.013	mg/L
RW06-PZM001	RW 94	0.66	2.8	1.3	2.1	1.8	2.8	1.2	4.2	2.6	6.1	2.9	7.3	3.2	1.1	3.5	1.5	1.5	16	3	1.5	mg/L
RW07-PZM004	RW-7	0.0025	0.005	Note 2	0.005	0.003	0.017	0.005	0.005	0.005	0.012	0.005	0.005	0.016	0.011	0.02	0.01	0.005	0.018	0.035	0.075	mg/L
RW08-PZM003	RW-88	30	28	34	30	33	27	36	29	32	26	30	23	25	16	20	19	19	20	21	18	mg/L
RW09-PZM004	New Well "X"			Note 1	0.005	0.003	0.005	0.005	0.005	0.005	0.044	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.0011	0.00079	0.00099	mg/L
RW10-PZM004	RW-26	0.008	0.0025	0.0025	0.045	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.0032	0.00098	0.0005	mg/L
RW11-PZM004	New Well "Y"			Note 1	14	30	33	34	37	20	24	18	32	31	24	21	32	19	41	16	35	mg/L
RW12-PZM004	New Well "Z"			Note 1	1.1	0.36	0.28	0.85	2.3	1.8	3	2.3	3	1.7	0.12	1.2	2.5	0.069	0.11	0.05	0.044	mg/L
RW19-PZP000					0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0005	0.00085	0.0033	0.0033	mg/L
RW20-PZP000	RW-8				0.005	0.005	0.005	0.005	0.005	0.18	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.025	0.0014	0.0013	mg/L
TS04-PDM004	TS-04-PD				0.005	0.012	0.005	0.005	0.005	0.013	0.025	0.008	0.01	0.005	0.005	0.008	0.006	0.00057	0.0016	0.0028	0.0014	mg/L
TS04-PPM007	TS-04-PP				0.005	0.005	0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	mg/L
Intermediate (Sand 2) Monitoring Wells																						
RW01-PZM020	RW-1	0.32	0.79	0.39	0.16	0.34	0.47	0.53	0.39	0.27	0.32	0.17	0.082	0.41	0.25	0.45	0.12	0.32	0.36	0.37	0.13	mg/L
RW02-PZM020	RW-2	1.3	0.55	1.2	0.041	0.01	0.46	0.48	0.005	1.6	1.7	1.5	0.335	0.32	0.25	0.04	0.23	0.093	0.35	0.30	0.10	mg/L
RW07-PZM017	RW-6	5.8	4.2	5.3	6.6	22	24	21	13	10	14	7.7	13	18	15	14	15	15	14	7.0	6.5	mg/L
RW10-PZM020	RW-27	3.2	2.8	3.0	38	13	15	13	15	15	14	14	6.05	14	12	11	10	10	8.9	10.0	9.8	mg/L
RW13-PZM020	RW-4	NA	NA	Note 2	0.50	0.066	0.023	0.061	0.005	0.14	0.23	0.24	0.005	0.005	0.005	0.005	0.005	0.0003	0.0091	0.0110	0.0085	mg/L
RW14-PZM020	New Well "A"			Note 1	1.7	1.8	0.43	2.1	1.6	1.9	2.3	2.3	1.8	2.0	1.8	1.6	1.3	1.3	1.0	0.42	0.83	mg/L
RW15-PZM020	RW-24R	0.22	NA	2.5	3.3	8	4.4	5.3	1.9	1.1	1.8	4.4	2.2	1.9	2.4	2.3	1.7	1.6	1.4	1.6	1.3	mg/L
RW16-PZM020	New Well "B"			Note 1	0.78	0.08	0.012	0.17	5.0	0.083	5.4	4	5.2	3.6	3.2	0.13	1.2	0.005	0.027	0.022	0.011	mg/L
RW17-PZM019	New Well "C"			Note 1	5.4	0.088	0.034	0.018	0.005	14	17	15	16	11	9.8	9.6	6.2	5.8	4.5	5.6	5.7	mg/L
RW19-PZM020	RW-12	NA	0.04	0.03	0.016	0.13	0.15	0.025	0.082	0.17	0.28	0.32	0.2	0.15	0.20	0.15	0.15	0.094	0.11	0.11	0.13	mg/L
RW20-PZM020	RW-9B	17	2.4	0.58	0.25	0.13	0.021	0.039	3.4	0.005	0.22	0.19	0.014	0.013	0.022	0.022	0.005	0.005	0.046	0.019	0.0011	mg/L
RW21-PZM023	RW-32	0.02	NA	Note 2	6.8	6.7	6.4	6.3	6.6	6.3	5.8	4.7	3.8	2.9	2.6	2.7	2	1.9	1.9	1.8	1.7	mg/L
TS04-PZM023	New Well "D"			Note 1	11	4.3	3.8	3.2	1.1	1.2	1	1.1	0.84	0.80	0.64	0.38	0.35	0.19	0.17	0.13	0.28	mg/L
Deep (Sand 3) Monitoring Wells																						
RW10-PZM065	RW-28				0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.052	0.005	0.005	0.005	0.005	0.007	0.0003	0.0031	0.0025	0.0028	mg/L
RW18-PZM047	RW-22				0.005	0.003	0.005	0.005	0.005	0.87	0.014	0.041	0.005	0.007	0.005	0.005	0.005	0.005	0.0051	0.0037	0.0024	mg/L
RW19-PZM050	RW-13				0.005	0.005	0.005	0.005	0.005	0.005	0.015	0.023	0.005	0.005	0.005	0.005	0.005	0.002	0.0016	0.0061	0.014	mg/L
RW20-PZM050	RW-10				0.005	0.005	0.005	0.005	0.005	0.026	0.014	0.025	0.005	0.005	0.005	0.005	0.005	0.0003	0.0019	0.0050	0.022	mg/L

Note 1: New wells installed prior to 3rd quarter 2001.
Note 2: Replacement wells installed prior to 3rd quarter 2001.
mg/L = milligrams per liter.
The shaded cells are non-detect results; one-half the detection limit has been entered.
The blank cells represent data not collected.
NS = Well destroyed. Not sampled.

Table 3-3
Summary of Zinc Monitoring Data for 2009 and Comparison with Prior Years

		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		Unit
New Well Designation	**Former Well Designation**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**Unit**
Shallow (Water Table) Monitoring Wells																						
RW02-PZM000	RW-3	15	20	18	29	26	13	14	3.7	12	13	16	17	5.1	0.97	20	1.1	2.6	14	8	4.5	mg/L
RW03-PZM003	RW-92	220	190	250	240	160	170	250	200	240	190	210	150	170	37	170	120	140	130	150	110	mg/L
RW04-PZM003	RW-91	10	28	12	9.3	7.1	6.2	12	13	14	16	13	13	6.3	13	9.5	10	15	4.9	9.5	5.5	mg/L
RW05-PZP001	RW-96	0.26	4.8	***0.82***	6.1	3.4	3.7	1.2	0.56	1.8	5.2	0.87	3.9	3.0	1.3	2.9	0.64	6.2	2.3	0.76	0.35	mg/L
RW06-PZM001	RW-94	11	17	19	14	15	21	17	25	20	39	23.0	47	26	15	32	19	23	110	26	36	mg/L
RW07-PZM004	RW-7	0.07	0.06	Note 2	1.1	2.9	8.7	3.5	3.2	1.5	2	0.31	0.94	9.1	4.0	13	3.9	9.7	4.5	19.0	33	mg/L
RW08-PZM003	RW-88	830	680	870	850	820	660	750	610	700	590	650	460	460	420	420	560	370	420	410	390	mg/L
RW09-PZM004	New Well "X"			Note 1	2.8	8.5	1.9	5.1	3.2	2.0	4.3	0.043	0.07	0.040	0.042	0.039	0.04	0.02	0.0086	0.0063	0.02	mg/L
RW10-PZM004	RW-26	4.9	6.2	5.9	5.5	6.1	0.41	0.54	0.62	0.33	0.55	0.02	0.18	0.032	0.18	0.045	0.07	0.067	0.028	0.018	0.057	mg/L
RW11-PZM004	New Well "Y"			Note 1	1300	2800	3200	3500	3500	1900	2300	1400	2800	2700	2000	1800	2800	1600	3700	1400	3500	mg/L
RW12-PZM004	New Well "Z"			Note 1	92	21	14	64	190	150	220	200	220	130	5.9	93	180	4.3	5.8	2.3	1.7	mg/L
RW19-PZP000	RW-8				***0.088***	0.038	0.025	0.067	0.14	0.053	0.064	0.022	0.027	0.020	0.046	0.02	0.02	0.01	0.023	0.010	0.054	mg/L
RW20-PZP000	RW20-PZP000				***0.044***	0.046	0.036	0.01	0.081	0.040	0.13	0.01	0.02	0.02	0.025	0.023	0.03	0.01	100	0.022	0.02	mg/L
TS04-PDM004	TS04-PDM004				5.5	15	1.6	3.8	8.2	4.3	14	0.240	15	0.31	0.17	0.24	0.05	0.15	0.12	0.033	0.02	mg/L
TS04-PPM007	TS04-PPM007				***0.35***	0.072	0.037	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	mg/L
Intermediate (Sand 2) Monitoring Wells																						
RW01-PZM020	RW-1	83	310	330	27	89	150	140	74	58	110	170	140	100	160	100	150	130	120	140	150	mg/L
RW02-PZM020	RW-2	2000	2300	2200	48	13	2500	2800	3100	3300	3300	3200	2800	2700	2700	45	2900	1500	2200	2300	800	mg/L
RW07-PZM017	RW-6	510	380	480	430	780	770	700	540	440	580	430	530	600	590	520	570	520	550	310	300	mg/L
RW10-PZM020	RW-27	390	320	410	600	480	580	540	630	550	630	690	210	560	600	580	520	510	530	540	550	mg/L
RW13-PZM020	RW-4	NA	NA	Note 2	120	15	3.4	3.2	0.16	0.12	0.16	0.059	0.081	0.030	0.048	0.037	0.07	0.029	0.017	0.020	0.076	mg/L
RW14-PZM020	New Well "A"			Note 1	390	480	370	490	450	440	440	440	340	390	380	340	350	290	310	150	260	mg/L
RW15-PZM020	RW-24R	79	NA	490	330	170	120	150	190	170	150	91	52	120	47	39	33	34	33	47	28	mg/L
RW16-PZM020	New Well "B"			Note 1	13	90	110	110	120	97	91	100	85	80	80	81	70	69	69	71	66	mg/L
RW17-PZM019	New Well "C"			Note 1	170	25	37	29	20	300	210	220	170	96	76	6.3	46	42	34	42	40	mg/L
RW19-PZM020	RW-12	NA	2.5	***3.4***	0.91	13	14	1.8	6.0	13	24	26	24	20	24	19	22	17	14	14	17	mg/L
RW20-PZM020	RW-9B	320	200	180	190	160	62	97	150	160	130	150	120	130	120	130	83	52	2.0	120.0	0.16	mg/L
RW21-PZM023	RW-32	0.24	NA	Note 2	63	60	60	58	58	58	50	39	35	29	27	25	22	22	21	20	19	mg/L
TS04-PZM023	New Well "D"			Note 1	220	94	110	78	25	34	34	39	35	32	27	15	17	140	5.4	4.0	12.0	mg/L
Deep (Sand 3) Monitoring Wells																						
RW10-PZM065	RW-28				***0.096***	0.11	0.12	0.01	0.074	0.01	0.065	0.031	0.022	0.031	0.057	0.024	0.23	0.042	0.015	0.053	0.084	mg/L
RW18-PZM047	RW-22				15	7	5.8	9.2	13	26	15	7.3	12	6.9	4.9	4.7	2.9	1.8	6.9	1.2	1.1	mg/L
RW19-PZM050	RW-13				0.53	0.43	0.42	0.19	0.23	0.24	0.087	0.092	0.051	0.19	0.22	0.086	0.05	0.33	0.22	0.54	0.17	mg/L
RW20-PZM050	RW-10				***0.057***	0.38	0.042	0.25	0.33	0.42	0.19	0.29	0.081	0.32	0.11	0.2	0.2	0.31	0.041	0.14	110*	mg/L

Note 1: New wells installed prior to 3rd quarter 2001.
Note 2: Replacement wells installed prior to 3rd quarter 2001.
Note 3: The 2008 4th Q results for RW20-PZP000 and RW20-PZM020 may relate to a transcription error, to be further evaluated during the next sampling round.
mg/L = milligrams per liter.
The blank cells represent data not collected.
The shaded cells are non-detect results; one-half the detection limit has been entered for statistical purposes.
The italicized values have been qualified by the data validator as qualitatively invalid due to their presence in associated laboratory or field blanks.
NS = Well destroyed. Not sampled.
* The reported concentration doesn't match historic values, which typically are less than 1 mg/L, and is considered to be an error in sampling/reporting convention for this well.

APPENDIX A

Water Levels, Purge Records

and

Microbac Laboratory Data[1]

[1] Laboratory data is only included in the digital version of this report.

April, 2009

Microbac Laboratories, Inc.

Severstal

Elevations @ the Former Rod & Wire Mill Area

Well Designation	Total Depth (ft.)	Depth to Water (ft.)
RW01-PZM020	30	13.61
RW02-PZM000	10	2.21
RW02-PZM020	30	14.33
RW03-PZM003	15	1.29
RW04-PZM003	15	2.81
RW05-PZM001	10	3.60
RW06-PZM001	10	2.54
RW07-PZM004	14	5.47
RW07-PZM017	30	14.95
RW08-PZM003	14	2.05
RW09-PZM004	14	3.97
RW10-PZM004	14	Water overflow / 0.00
RW10-PZM020	30	17.25
RW10-PZM065	70	9.78
RW11-PZM004	14	5.30
RW12-PZM004	14	5.27
RW13-PZM020	30	14.66
RW14-PZM020	30	15.43
RW15-PZM020	32	16.93
RW16-PZM020	30	15.16
RW17-PZM019	29	15.45
RW18-PZM047	60	16.13
RW19-PZM020	30	15.37
RW19-PZM050	60	13.60
RW19-PZM000	10	8.85
RW20-PZM020	32	15.16
RW20-PZM050	60	10.59
RW20-PZM000	10	4.47
RW21-PZM023	33	14.33
TS04-PDM004	15	6.74
TS04-PZM023	33	11.48

Note:

1. Groundwater elevations were performed on 4/21/09 Jason W Hughes

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW07-PZM017 Tag: BA-81-4132

Date of Purging: 4/24/09 Start Time: 7:32 Finish Time: 7:47 Weather: 45-50°
Date of Collection: 4/24/09 Time of Collection: 7:47

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.02
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	15.74

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	12.6	13.9	14.3	14.5	14.6	14.6
pH	4.31	4.19	4.17	4.15	4.14	4.13
Specific Conductance (umhos/cm)	3790	3610	3580	3560	3550	3550
Dissolved Oxygen (mg/l)	2.29	1.17	0.95	0.80	0.70	0.70
Oxidation Reduction (eH)	284.5	276.5	267.2	260.6	255.3	252.5

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor No
Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: PW19-PZM050 Tag: BA-81-4978

Date of Purging: 4/24/09 Start Time: 8:25 Finish Time: 8:40 Weather: 45-50°
Date of Collection: 4/24/09 Time of Collection: 8:40

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.65
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.15

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	15.2	15.5	15.8	15.9	15.9	15.9	
pH	5.69	6.07	6.38	6.49	6.52	6.53	
Specific Conductance (umhos/cm)	432	349	365	368	366	366	
Dissolved Oxygen (mg/l)	2.38	1.15	0.49	0.34	0.32	0.32	
Oxidation Reduction (eH)	174.6	113.5	13.7	-37.4	-57.6	-61.1	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Lt. Greenish / Brown

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 09. (Tech -JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW19-PZM020 Tag: BA-81-4979

Date of Purging: 4/24/09 Start Time: 8:57 Finish Time: 09:15 Weather: 45-50°
Date of Collection: 4/24/09 Time of Collection: 9:15

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.41
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	16.04

						Sample Reading	
Number of minutes purged	0	3	6	9	12	15	18
Temperature (°C)	17.0	16.2	15.9	16.0	16.0	16.1	16.1
pH	6.67	6.65	5.80	5.51	5.41	5.39	5.40
Specific Conductance (umhos/cm)	1874	2090	11020	12690	12920	12980	12990
Dissolved Oxygen (mg/l)	5.80	4.92	2.90	1.44	0.92	0.51	0.52
Oxidation Reduction (eH)	-24.2	14.2	48.5	62.3	68.5	72.1	74.1

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor no
Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW19-PZ,M000 Tag: BA-81-4980

Date of Purging: 4/21/09 Start Time: 9:30 Finish Time: 9:45 Weather: 45-50°
Date of Collection: 4/24/09 Time of Collection: 9:45

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.47

Number of minutes purged	0	3	6	9	12	Sample Reading 15	
Temperature (°C)	18.2	16.8	16.1	16.0	15.9	16.1	
pH	6.97	7.16	7.13	7.15	7.23	7.24	
Specific Conductance (umhos/cm)	842	793	746	693	511	510	
Dissolved Oxygen (mg/l)	2.30	1.63	1.41	1.55	2.46	2.51	
Oxidation Reduction (eH)	26.1	26.2	35.9	42.4	51.5	56.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor no
Color Clear

Rate of Purge _____ **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 09. (Tech - JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW18-PZM047 Tag: BA-81-4995

Date of Purging: 4/24/09 Start Time: 10:07 Finish Time: 10:22 Weather: 50-55°
Date of Collection: 4/24/09 Time of Collection: 10:22

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	16.31
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.12

Number of minutes purged	0	3	6	9	12	Sample Reading ~~15~~ JH
Temperature (°C)	17.5	17.1	16.7	16.7	16.8	
pH	6.73	6.65	6.63	6.64	6.65	
Specific Conductance (umhos/cm)	452	448	449	449	450	
Dissolved Oxygen (mg/l)	1.18	0.60	0.36	0.22	0.25	
Oxidation Reduction (eH)	-21.1	-66.4	-84.1	-93.4	-98.6	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor No
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: TSO4 - PZM023 Tag: NO TAG

Date of Purging: 4/24/09 Start Time: 10:40 Finish Time: 10:58 Weather: 50-55°

Date of Collection: 4/24/09 Time of Collection: 10:58

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	11.52
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	11.94

						Sample Reading	
Number of minutes purged	0	3	6	9	12	15	18
Temperature (°C)	17.8	17.0	16.9	16.8	16.8	16.9	16.9
pH	6.75	6.90	7.13	7.38	7.45	6.89	6.86
Specific Conductance (umhos/cm)	2020	1956	1956	1950	2000	7460	7510
Dissolved Oxygen (mg/l)	5.56	5.35	5.32	5.29	5.15	5.20	5.22
Oxidation Reduction (eH)	-33.3	-29.6	-17.5	-2.8	10.2	28.4	28.8

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor Mild

Color Mostly Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 24 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW10- PLM020 Tag: Shed 27

Date of Purging: 4/22/09 Start Time: 7:55 Finish Time: 8:10 Weather: 45-50°
Date of Collection: 4/22/09 Time of Collection: 8:10

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	17.25
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	18.10

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	15.4	15.3	15.3	15.5	15.5	15.4
pH	5.06	5.01	5.01	5.01	5.00	5.02
Specific Conductance (umhos/cm)	4840	4800	4790	4770	4820	4820
Dissolved Oxygen (mg/l)	4.86	7.53	9.43	8.12	9.26	8.43
Oxidation Reduction (eH)	273.8	262.0	259.1	253.0	247.1	245.2

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech - JH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: PW14-PZM020 Tag: BA-94-5708

Date of Purging: 4/22/09 Start Time: 8:25 Finish Time: 8:43 Weather: 45-50° Lt. Rain

Date of Collection: 4/22/09 Time of Collection: 8:43

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.41
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	16.02

						Sample Reading	
Number of minutes purged	0	3	6	9	12	15	18
Temperature (°C)	14.1	14.2	14.4	14.6	14.7	14.7	14.8
pH	3.43	3.85	5.26	5.51	5.64	5.70	5.72
Specific Conductance (umhos/cm)	3270	3200	3260	3290	3310	3290	3310
Dissolved Oxygen (mg/l)	2.71	1.63	1.09	0.81	0.59	0.44	0.39
Oxidation Reduction (eH)	290.6	257.1	203.5	181.9	154.1	129.1	124.7

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NO

Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 22 / 09. (Tech – JH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW07-PLM004 Tag: BA-94-5711

Date of Purging: 4/22/09 Start Time: 9:32 Finish Time: 9:47 Weather: 45-50° Lt. Rain
Date of Collection: 4/22/09 Time of Collection: 9:47

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.72

						Sample Reading
Number of minutes purged	0	3	6	9	12	15
Temperature (°C)	12.9	12.9	13.0	13.0	13.0	13.1
pH	6.41	6.83	7.00	7.08	7.13	7.14
Specific Conductance (umhos/cm)	966	843	826	818	818	815
Dissolved Oxygen (mg/l)	8.47	8.53	8.53	1.41	1.22	1.19
Oxidation Reduction (eH)	95.8	69.9	63.1	60.3	62.4	61.4

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW06-PZM001 Tag: BA-81-7935

Date of Purging: 4/22/09 Start Time: 10:05 Finish Time: 10:20 Weather: 45-50°
Date of Collection: 4/22/09 Time of Collection: 10:20

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	2.52
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.71

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	12.9	12.4	12.3	12.3	12.3	12.3	
pH	7.02	6.79	6.74	6.69	6.67	6.66	
Specific Conductance (umhos/cm)	778	761	743	744	750	746	
Dissolved Oxygen (mg/l)	3.34	3.24	3.33	3.28	3.24	3.20	
Oxidation Reduction (eH)	124.6	136.3	141.6	145.6	148.8	149.2	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW08-PZM00B Tag: BA-81-2488

Date of Purging: 4/22/09 Start Time: 16:40 Finish Time: 10145 Weather: 45-50°
Date of Collection: 4/22/09 Time of Collection: 10:45

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	2.02
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.12

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	13.2	12.6	12.6	12.5	12.5	12.5
pH	5.11	4.24	4.19	4.17	4.17	4.16
Specific Conductance (umhos/cm)	1957	1880	1871	1875	1877	1880
Dissolved Oxygen (mg/l)	0.57	7.66	7.45	7.32	7.22	7.10
Oxidation Reduction (eH)	261.1	248.0	241.2	238.3	235.7	234.9

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW04-PZM003 Tag: BA-81-2491

Date of Purging: 4/22/09 Start Time: 11:28 Finish Time: 1143 Weather: 45-50° Lt Rain
Date of Collection: 4/22/09 Time of Collection: 1143

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	2.80
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.21

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	12.8	12.4	12.4	12.3	12.3	12.2	
pH	5.70	6.20	6.46	6.48	6.52	6.53	
Specific Conductance (umhos/cm)	1072	1072	1065	1070	1065	1059	*
Dissolved Oxygen (mg/l)	0.44	0.08	0.00				
Oxidation Reduction (eH)	180.0	172.5	158.8	151.1	138.1	127.1	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Lt. Brown / Redish Brown

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech - JH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW01-PZM020 Tag: BA-81-4133

Date of Purging: 4/22/09 Start Time: 12:24 Finish Time: 12:36 Weather: 45-50° Lt. Rain
Date of Collection: 4/22/09 Time of Collection: 12:36

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.57
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.24

						Sample Reading
Number of minutes purged	0	3	6	9	12	
Temperature (°C)	11.7	13.8	13.7	13.6	13.6	
pH	5.96	5.38	5.22	5.16	5.14	
Specific Conductance (umhos/cm)	2250	2270	2260	2260	2260	
Dissolved Oxygen (mg/l)	0.77	0.35	0.10	0.11	0.07	
Oxidation Reduction (eH)	199.8	198.7	195.2	193.4	193.3	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Lt Brown

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech - JH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW12-PZM 004 Tag: BA-94-5704

Date of Purging: 4/22/09 Start Time: 12:57 Finish Time: 13:12 Weather: 45-50° L+ Rain
Date of Collection: 4/22/09 Time of Collection: 13:12

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.25
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.31

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	12.2	11.6	11.5	11.5	11.6	11.6
pH	6.141	6.24	6.36	6.32	6.32	6.33
Specific Conductance (umhos/cm)	692	694	693	694	700	698
Dissolved Oxygen (mg/l)	6.21	5.49	5.31	5.18	5.14	5.12
Oxidation Reduction (eH)	176.0	177.2	180.1	182.9	184.4	184.8

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Clear

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW03-PZM020 Tag: BA-94-5709

Date of Purging: 4/22/09 Start Time: 13:28 Finish Time: 13:52 Weather: 45-50°

Date of Collection: 4/22/09 Time of Collection: 13:52

Well Status:

Good _____ Grout _____

Good _____ Casing _____

Good _____ Lock _____

Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.61
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	16.01

						Sample Reading		
Number of minutes purged	0	3	6	9	12	15	18	21
Temperature (°C)	14.4	14.4	14.4	14.5	14.5	14.7	14.7	14.7
pH	3.00	2.59	2.55	2.54	2.70	3.74	5.60	5.61
Specific Conductance (umhos/cm)	2350	2340	2320	2340	2330	2021	2140	2140
Dissolved Oxygen (mg/l)	2.55	2.26	2.16	2.09	0.61	0.51	0.25	0.20
Oxidation Reduction (eH)	341.1	363.1	395.7	417.0	385.7	341.1	145.7	144.6

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 22 / 09. (Tech JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW16-PZM020 Tag: BA-94-5707

Date of Purging: 4/22/09 Start Time: 14:20 Finish Time: 14:35 Weather: 45-50°
Date of Collection: 4/22/09 Time of Collection: 14:35

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.12
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	16.13

Number of minutes purged	0	3	6	9	12	Sample Reading 15	
Temperature (°C)	16.9	16.3	15.7	15.9	16.0	15.6	
pH	5.18	5.19	5.18	5.19	5.19	5.18	
Specific Conductance (umhos/cm)	1287	1274	1274	1285	1327	1330	
Dissolved Oxygen (mg/l)	0.62	0.16	0.10	0.05	0.00	0.00	
Oxidation Reduction (eH)	114.1	115.7	119.9	122.1	123.3	124.8	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NO
Color Lt Brown

Rate of Purge 100 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 4 / 22 / 09. (Tech - JH)

November, 2009

Microbac Laboratories, Inc.

Severstal

Elevations @ the Former Rod & Wire Mill Area

Well Designation	Total Depth (ft.)	Depth to Water (ft.)
RW01-PZM020	30	13.87
RW02-PZM000	10	3.34
RW02-PZM020	30	14.41
RW03-PZM003	15	3.10
RW04-PZM003	15	4.31
RW05-PZM001	10	6.12
RW06-PZM001	10	3.91
RW07-PZM004	14	5.41
RW07-PZM017	30	14.25
RW08-PZM003	14	3.17
RW09-PZM004	14	4.24
RW10-PZM004	14	1.24
RW10-PZM020	30	16.71
RW10-PZM065	70	10.23
RW11-PZM004	14	5.94
RW12-PZM004	14	6.04
RW13-PZM020	30	14.29
RW14-PZM020	30	15.14
RW15-PZM020	32	16.52
RW16-PZM020	30	15.21
RW17-PZM019	29	15.37
RW18-PZM047	60	15.29
RW19-PZM020	30	13.10
RW19-PZM050	60	14.91
RW19-PZM000	10	4.51
RW20-PZM020	32	14.94
RW20-PZM050	60	12.14
RW20-PZM000	10	4.23
RW21-PZM023	33	14.10
TS04-PDM004	15	10.54
TS04-PZM023	33	11.29

Note:

1. Groundwater elevations were performed on 10/27/9.

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW17-PZM019 Tag: _____

Date of Purging: 10/27/09 Start Time: 1055 Finish Time: 1113 Weather: 45-50° Lt. Rain
Date of Collection: 10/27/09 Time of Collection: 1113

Well Status:

Good	_____	Grout	_____
Good	✓	Casing	_____
Good	✓	Lock	_____
Good	✓	Obstructions	_____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.37
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.94

Number of minutes purged	0	3	6	9	12	Sample Reading 15	Sample Reading 18
Temperature (°C)	16.5	16.4	16.6	16.6	16.5	16.5	16.5
pH	5.09	5.47	5.72	5.83	5.89	5.92	5.94
Specific Conductance (umhos/cm)	3220	2770	3240	3840	4660	5180	5280
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	473.4	445.1	386.9	295.6	251.9	235.1	227.9

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Cloudy yellowish tint

Rate of Purge 100 **milliliters / minute**

Comments: 1 Dup Taken *

Reference SOP Field-014
Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW16 PZM020 Tag: BA-94-5707

Date of Purging: 10/27/9 Start Time: 1155 Finish Time: 1207 Weather: 45-50° Lt. Rain

Date of Collection: 10/27/9 Time of Collection: 1207

Well Status:

Good		Grout	
Good	✓	Casing	
Good	X	Lock	no Lock
Good	✓	Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.21
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.11

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.7	17.5	17.6	17.5	17.5	
pH	5.64	5.54	5.53	5.55	5.56	
Specific Conductance (umhos/cm)	1194	1196	1205	1190	1214	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	209.8	250.7	259.8	266.7	267.4	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump

Well Observation

Odor none

Color Clear

Rate of Purge 100 **milliliters / minute**

Comments:

Reference SOP Field-014

Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: [redacted] TS04-PDM004 Tag: _____

Date of Purging: 10/27/9 Start Time: 1313 Finish Time: 1325 Weather: 45-50° Lt. Rain

Date of Collection: 10/27/9 Time of Collection: 1325

Well Status:

Good		Grout	
Good	✓	Casing	
Good		Lock	No Lock
Good	✓	Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.54
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.40

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.0	18.00	18.0	17.9	17.9	
pH	8.92	9.22	9.23	9.25	9.27	
Specific Conductance (umhos/cm)	285	274	279	276	269	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	459.3	463.8	466.4	466.0	466.7	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: PW15 PZM020 Tag: _____

Date of Purging: 10/27/09 Start Time: 1355 Finish Time: 1410 Weather: 45-50°

Date of Collection: 10/27/09 Time of Collection: 1410

Well Status:

Good _____ Grout _____

Good _____ Casing _____

Good _____ Lock _____

Good _____ Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	16.82
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	18.25

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	18.4	17.8	17.7	17.6	17.7	17.7	
pH	6.40	6.37	6.23	6.22	6.21	6.21	
Specific Conductance (umhos/cm)	10410	10290	10460	10410	10620	10720	
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	352.1	339.9	320.5	290.4	268.7	255.9	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 115 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW10-PZM020 Tag: _____

Date of Purging: 10/27/9 Start Time: 1438 Finish Time: 1450 Weather: 45-50°
Date of Collection: 10/27/9 Time of Collection: 1450

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	16.71
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	19.09

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	16.7	16.6	16.6	16.6	16.6	
pH	5.21	5.21	5.22	5.21	5.21	
Specific Conductance (umhos/cm)	4610	4680	4630	4700	4660	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	312.7	323.6	329.5	331.8	333.2	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor Slight
Color Mostly Clear

Rate of Purge 115 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: MW10-PZM065 Tag: _____

Date of Purging: 10/27/9 Start Time: 1519 Finish Time: 1531 Weather: 45-50° Lt. Rain

Date of Collection: 10/27/9 Time of Collection: 1531

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.23
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.94

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.5	17.4	17.6	17.5	17.4	
pH	11.05	11.85	7.14	6.77	6.71	
Specific Conductance (umhos/cm)	1269	1185	1099	1180	1179	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	79.1	95.1	21.5	66.7	71.6	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Mostly Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 27 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW09-PZM004 Tag: BA-94-5701

Date of Purging: 10/28/9 Start Time: 0851 Finish Time: 0904 Weather: 45-50°

Date of Collection: 10/28/9 Time of Collection: 0904

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.24
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.25

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	18.2	18.5	18.6	18.8	18.8	
pH	10.86	11.01	11.09	11.13	11.14	
Specific Conductance (umhos/cm)	631	632	642	647	661	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	426.7	419.2	410.9	402.5	394.7	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Mostly Clear

Rate of Purge 110 **milliliters / minute**

Comments: * ~~MS/MSD~~ Duplicate

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW14-PZM020 Tag: _____

Date of Purging: 10/28/09 Start Time: 0946 Finish Time: 1001 Weather: 45-50°

Date of Collection: 10/28/09 Time of Collection: 1001

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.14
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.94

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	17.6	17.6	17.7	17.6	17.6	17.5
pH	4.95	5.24	5.60	5.90	5.93	5.94
Specific Conductance (umhos/cm)	3040	3030	3280	3270	3240	3240
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	438.6	366.4	275.4	209.8	202.8	201.7

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: * MS/MSD Samples

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW04-PZM003 Tag: _____

Date of Purging: 10/28/9 Start Time: 1057 Finish Time: 1104 Weather: 45-50°

Date of Collection: 10/28/9 Time of Collection: 1104

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.31
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.81

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	18.4	18.3	18.5	18.7	18.6	
pH	6.99	6.88	6.85	6.82	6.83	
Specific Conductance (umhos/cm)	821	811	811	804	801	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	206.0	206.4	209.4	214.7	215.7	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: PW07-PZM004 Tag: _____

Date of Purging: 10/28/9 Start Time: 1138 Finish Time: 1150 Weather: 45-50°

Date of Collection: 10/28/9 Time of Collection: 1150

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.41
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.80

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	19.8	19.5	19.4	19.4	19.5	
pH	7.10	7.15	7.21	7.20	7.20	
Specific Conductance (umhos/cm)	985	987	1006	994	1008	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	481.8	441.7	372.4	200.1	199.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW07-P2M-017 Tag: _____

Date of Purging: 10/28/09 Start Time: 1216 Finish Time: 1228 Weather: 50-55°

Date of Collection: 10/28/09 Time of Collection: 1228

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	~~PVC~~ 2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.75
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.17

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	19.9	19.4	19.1	19.0	19.0	
pH	3.94	3.83	3.83	3.84	3.86	
Specific Conductance (umhos/cm)	3540	3580	3590	3580	3580	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	492.6	500.9	506.9	506.5	496.9	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW11-PZM004 Tag: _____

Date of Purging: 10/28/09 Start Time: 1311 Finish Time: 1323 Weather: 50-55°

Date of Collection: 10/28/09 Time of Collection: 1323

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.94
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.35

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	21.3	21.3	21.1	21.2	20.9	
pH	3.86	3.92	3.90	3.88	3.88	
Specific Conductance (umhos/cm)	9830	9640	9670	9020	8940	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	493.3	502.7	505.9	509.2	509.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Cloudy

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW13-PZM020 Tag: _____

Date of Purging: 10/28/09 Start Time: 1400 Finish Time: 1415 Weather: 50-55°
Date of Collection: 10/28/09 Time of Collection: 1415

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.29
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.04

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	19.4	18.4	18.2	17.9	17.8	17.9	
pH	5.19	5.21	5.24	5.69	5.71	5.74	
Specific Conductance (umhos/cm)	3150	3140	2310	2200	2110	2200	
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	219.4	220.1	221.4	233.1	245.1	241.7	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: PW17-PZM004 Tag: _____

Date of Purging: 10/28/09 Start Time: 1455 Finish Time: 1510 Weather: 50-55°
Date of Collection: 10/28/09 Time of Collection: 1510

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	6.04
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.10

	0	3	6	9	12	15	Sample Reading
Number of minutes purged							
Temperature (°C)	17.8	17.6	16.5	16.2	16.1	15.9	
pH	5.94	6.10	6.15	6.21	6.25	6.29	
Specific Conductance (umhos/cm)	694	695	700	704	704	702	
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	236.4	224.1	215.4	199.1	198.1	197.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge _____ **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 28 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RWOS-PZ#001 Tag: _____

Date of Purging: 10/29/09 Start Time: 0802 Finish Time: 0814 Weather: 50°

Date of Collection: 10/29/09 Time of Collection: 0814

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	6.12
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.47

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.0	17.1	17.1	17.2	17.1	
pH	6.91	7.39	7.47	7.47	7.50	
Specific Conductance (umhos/cm)	237	244	437	585	582	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	493.2	505.7	510.6	510.3	511.8	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW01 - PZM020 Tag: _____

Date of Purging: 10/29/09 Start Time: 0843 Finish Time: 0901 Weather: 50°
Date of Collection: 10/29/09 Time of Collection: 0901

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.87
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	_____

						Sample Reading	
Number of minutes purged	0	3	6	9	12	15	18
Temperature (°C)	16.5	16.3	16.4	16.3	16.3	16.2	16.1
pH	6.34	6.06	5.99	5.89	5.90	5.91	5.89
Specific Conductance (umhos/cm)	2350	2380	2280	2260	2440	2420	2410
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	307.3	335.9	344.6	352.6	304.4	283.7	279.4

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear / orange tint

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW06-P2M001 Tag: _____

Date of Purging: 10/29/09 Start Time: 0942 Finish Time: 0954 Weather: 50°
Date of Collection: 10/29/09 Time of Collection: 0954

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.12

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.2	17.2	17.1	17.3	17.3	
pH	6.19	6.09	6.09	6.08	6.08	
Specific Conductance (umhos/cm)	782	810	771	761	767	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	236.5	280.6	306.8	318.1	324.1	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW08-PZMC03 Tag: _____

Date of Purging: 10/29/09 Start Time: 1018 Finish Time: 1038 Weather: Soo
Date of Collection: 10/29/09 Time of Collection: 1038

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.17
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.09

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.0	17.6	17.6	17.6	17.6	
pH	4.67	4.42	4.38	4.37	4.35	
Specific Conductance (umhos/cm)	1912	1886	1886	1878	1908	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	403.9	446.0	454.0	462.6	466.1	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor _____
Color _____

Rate of Purge 110 **milliliters / minute**

Comments: * Duplicate Sample taken

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW03-PZ4003 Tag: _____

Date of Purging: 10/29/09 Start Time: 1124 Finish Time: 1136 Weather: 50°

Date of Collection: 10/29/09 Time of Collection: 1136

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.10
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	5.91

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	16.8	16.9	16.8	16.9	16.8	
pH	5.31	5.47	5.43	5.47	5.48	
Specific Conductance (umhos/cm)	1932	1890	1943	1956	1950	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	437.0	435.9	434.2	431.7	426.4	

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor none

Color Reddish Tint ~~Sed~~

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW02-PZM000 Tag: _____

Date of Purging: 10/29/9 Start Time: 1201 Finish Time: 1213 Weather: 50°
Date of Collection: 10/29/09 Time of Collection: 1213

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.34
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	5.14

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	16.7	16.7	16.7	16.8	16.8	
pH	6.53	6.59	6.75	6.67	6.80	
Specific Conductance (umhos/cm)	1144	1142	1143	1067	1076	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	369.9	380.9	390.4	396.2	397.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: MW02-RM020 Tag: _____

Date of Purging: 10/29/09 Start Time: 1234 Finish Time: 1249 Weather: 50°

Date of Collection: 10/29/09 Time of Collection: 1249

Well Status:

Good	_____	Grout	_____
Good	_____	Casing	_____
Good	_____	Lock	_____
Good	_____	Obstructions	_____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.41
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.10

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	16.7	16.7	16.7	16.6	16.6	16.5
pH	6.70	6.64	6.44	6.29	6.07	5.95
Specific Conductance (umhos/cm)	1818	1442	1432	1496	1560	1600
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	201.5	193.2	212.6	225.6	239.3	245.9

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW10-PZM004 Tag: _____

Date of Purging: 10-29-09 Start Time: 1326 Finish Time: 1338 Weather: 45-50°

Date of Collection: 10-29-09 Time of Collection: 1338

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	1.24
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.45

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.6	18.0	18.0	18.1	18.1	
pH	9.14	10.29	10.30	10.25	10.26	
Specific Conductance (umhos/cm)	334	324	336	339	340	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	71.4	59.9	73.9	85.2	89.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor none
Color Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW21-PZM023 Tag: _____

Date of Purging: 10/29/09 Start Time: 1407 Finish Time: 1422 Weather: 45-50°

Date of Collection: 10/29/09 Time of Collection: 1422

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.10
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.25

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.4	18.1	17.9	17.4	17.4	17.3
pH	3.47	4.99	5.34	6.19	6.20	6.23
Specific Conductance (umhos/cm)	10230	10440	10610	10640	10640	10640
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	349.1	250.1	191.7	135.4	129.4	127.9

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW70-PZM020 Tag: _____

Date of Purging: 10-29-09 Start Time: 1445 Finish Time: 1500 Weather: 45-50°
Date of Collection: 10-29-09 Time of Collection: 1500

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.94
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.10

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.1	18.0	17.9	17.8	17.9	17.9
pH	7.24	7.13	6.81	6.31	6.29	6.27
Specific Conductance (umhos/cm)	1532	1494	1335	1301	1294	1291
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	439.7	315.6	220.9	215.9	212.4	211.9

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Cloudy

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: MW20-PZ4000 Tag: _____

Date of Purging: 10/29/09 Start Time: 1510 Finish Time: 1522 Weather: 45-50°
Date of Collection: 10/29/09 Time of Collection: 1522

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.51
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.19

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	17.1	17.1	17.2	17.1	17.4	
pH	7.21	7.19	7.16	7.05	7.04	
Specific Conductance (umhos/cm)	1020	1021	1004	1002	1001	
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	220.9	221.7	209.7	190.4	187.4	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Mostly Clear

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW20-PLM050 Tag: _____

Date of Purging: 10-29-09 Start Time: 1530 Finish Time: 1545 Weather: 45-50°
Date of Collection: 10-29-09 Time of Collection: 1545

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	12.14
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	15.19

Number of minutes purged	0	3	6	9	12	15	Sample Reading
Temperature (°C)	17.9	17.9	17.7	17.7	17.8	17.9	
pH	8.41	7.55	6.90	6.82	6.76	6.74	
Specific Conductance (umhos/cm)	825	597	510	495	415	410	
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	493.4	387.4	315.0	250.2	284.9	224.9	

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Red/Yellow / Cloudy

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: TS04-PZM023 Tag: _____

Date of Purging: 10/29/09 Start Time: 1611 Finish Time: 1632 Weather: 45-50°

Date of Collection: 10/29/09 Time of Collection: 1632

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	11.29
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.87

Number of minutes purged	0	3	6	9	12	15	18	Sample Reading 21
Temperature (°C)	18.1	17.9	17.4	16.8	16.7	16.9	16.8	16.7
pH	6.71	6.72	6.74	6.84	6.87	6.92	6.93	6.94
Specific Conductance (umhos/cm)	6550	7442	7721	8440	8530	8910	8910	8920
Dissolved Oxygen (mg/l)								
Oxidation Reduction (eH)	316.4	281.1	256.7	174.6	123.3	105.6	103.4	101.7

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor Slight

Color Dirty/Brownish

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 29 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD
Well **I.D.**: RW18-PZM017 Tag: _____

Date of Purging: 11-2-09 Start Time: 1305 Finish Time: 1320 Weather: 50-55°
Date of Collection: 11-2-09 Time of Collection: 1320

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.29
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	18.04

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	17.9	17.6	17.4	17.5	17.4	17.4
pH	6.94	6.91	6.81	6.80	6.79	6.77
Specific Conductance (umhos/cm)	975	891	525	469	467	464
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	-25.1	-13.9	109.1	108.4	107.9	106.9

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor _____
Color _____

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW19-PZM050 Tag: _____

Date of Purging: 11-2-09 Start Time: 1335 Finish Time: 1353 Weather: 50-55°

Date of Collection: 11-2-09 Time of Collection: 1353

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	17.12

Number of minutes purged	0	3	6	9	12	15	Sample Reading 18
Temperature (°C)	17.3	17.1	17.0	17.1	16.8	16.6	16.7
pH	6.31	6.37	6.39	6.43	6.54	6.50	6.67
Specific Conductance (umhos/cm)	984	572	409	389	383	383	382
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	240.7	210.9	137.1	129.8	117.8	116.4	115.4

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW19-PZM020 Tag: _____

Date of Purging: 11-2-09 Start Time: 1400 Finish Time: 1418 Weather: 50-55°

Date of Collection: 11-2-09 Time of Collection: 1418

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.10
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	16.14

Number of minutes purged	0	3	6	9	12	Sample Reading 15	18
Temperature (°C)	17.1	17.0	16.9	16.8	16.7	16.7	16.7
pH	5.16	5.19	5.21	5.37	5.46	5.47	5.49
Specific Conductance (umhos/cm)	1954	10100	11010	13000	13020	13010	13010
Dissolved Oxygen (mg/l)							
Oxidation Reduction (eH)	345.7	256.7	189.4	141.7	139.4	127.9	124.7

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 110 **milliliters / minute**

Comments: *MS/MSD

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 09. (Tech – JH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: Sparrows Point, MD

Well **I.D.**: RW19-PZPOCO Tag: _____

Date of Purging: 11-2-09 Start Time: 1425 Finish Time: 1440 Weather: 50-55°

Date of Collection: 11-2-09 Time of Collection: 1440

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.51
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.94

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	16.4	16.3	16.5	16.6	16.6	16.7
pH	7.57	7.52	7.47	7.41	7.41	7.39
Specific Conductance (umhos/cm)	735	719	694	603	601	604
Dissolved Oxygen (mg/l)						
Oxidation Reduction (eH)	110.9	91.7	99.7	94.3	95.6	94.7

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 110 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 09. (Tech – JH)

HQN:groundisg.doc.white

APPENDIX B

Daily Pumping Records for the Groundwater Pump and Treat System

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

January-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
1/1/2009	0	-	0	**0.0**
1/2/2009	0	-	0	**0.0**
1/3/2009	0	-	0	**0.0**
1/4/2009	0	-	0	**0.0**
1/5/2009	10,531	-	10,531	**7.3**
1/6/2009	12,775	-	12,775	**8.9**
1/7/2009	12,121	-	12,121	**8.4**
1/8/2009	13,143	-	13,143	**9.1**
1/9/2009	13,040	-	13,040	**9.1**
1/10/2009	12,416	-	12,416	**8.6**
1/11/2009	13,104	-	13,104	**9.1**
1/12/2009	12,554	-	12,554	**8.7**
1/13/2009	13,781	-	13,781	**9.6**
1/14/2009	15,718	-	15,718	**10.9**
1/15/2009	11,869	-	11,869	**8.2**
1/16/2009	14,633	-	14,633	**10.2**
1/17/2009	15,289	-	15,289	**10.6**
1/18/2009	14,544	-	14,544	**10.1**
1/19/2009	16,517	-	16,517	**11.5**
1/20/2009	14,829	-	14,829	**10.3**
1/21/2009	14,819	-	14,819	**10.3**
1/22/2009	14,098	-	14,098	**9.8**
1/23/2009	12,224	-	12,224	**8.5**
1/24/2009	12,798	-	12,798	**8.9**
1/25/2009	13,334	-	13,334	**9.3**
1/26/2009	13,437	-	13,437	**9.3**
1/27/2009	14,653	-	14,653	**10.2**
1/28/2009	12,921	-	12,921	**9.0**
1/29/2009	12,845	-	12,845	**8.9**
1/30/2009	12,918	-	12,918	**9.0**
1/31/2009	9,921	-	9,921	**6.9**
Totals:	**360,832**	**0**	**360,832**	**8.1**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

February-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
2/1/2009	12,032	-	12,032	**8.4**
2/2/2009	12,041	-	12,041	**8.4**
2/3/2009	8,082	-	8,082	**5.6**
2/4/2009	0	-	0	**0.0**
2/5/2009	0	-	0	**0.0**
2/6/2009	0	-	0	**0.0**
2/7/2009	0	-	0	**0.0**
2/8/2009	0	-	0	**0.0**
2/9/2009	0	-	0	**0.0**
2/10/2009	9,832	6,431	16,263	**11.3**
2/11/2009	13,995	8,397	22,392	**15.6**
2/12/2009	15,375	9,271	24,646	**17.1**
2/13/2009	13,725	8,272	21,997	**15.3**
2/14/2009	14,537	10,923	25,460	**17.7**
2/15/2009	0	10,562	10,562	**7.3**
2/16/2009	0	7,954	7,954	**5.5**
2/17/2009	0	10,559	10,559	**7.3**
2/18/2009	0	11,271	11,271	**7.8**
2/19/2009	0	10,375	10,375	**7.2**
2/20/2009	0	12,753	12,753	**8.9**
2/21/2009	0	10,841	10,841	**7.5**
2/22/2009	0	10,957	10,957	**7.6**
2/23/2009	4,071	7,868	11,939	**8.3**
2/24/2009	17,837	6,433	24,270	**16.9**
2/25/2009	19,236	6,942	26,178	**18.2**
2/26/2009	19,066	6,922	25,988	**18.0**
2/27/2009	19,260	7,050	26,310	**18.3**
2/28/2009	21,556	7,788	29,344	**12.4**
Totals:	**200,645**	**171,569**	**372,214**	**8.9**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

March-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
3/1/2009	11,204	8,400	19,604	**13.6**
3/2/2009	18,381	15,149	33,530	**23.3**
3/3/2009	19,128	7,027	26,155	**18.2**
3/4/2009	15,466	5,700	21,166	**14.7**
3/5/2009	8,260	9,384	17,644	**12.3**
3/6/2009	4,224	10,653	14,877	**10.3**
3/7/2009	3,912	9,970	13,882	**9.6**
3/8/2009	174	13,484	13,658	**9.5**
3/9/2009	3,613	7,963	11,576	**8.0**
3/10/2009	11,225	9,994	21,219	**14.7**
3/11/2009	13,775	9,167	22,942	**15.9**
3/12/2009	12,792	8,136	20,928	**14.5**
3/13/2009	13,533	8,620	22,153	**15.4**
3/14/2009	13,438	8,675	22,113	**15.4**
3/15/2009	13,450	8,570	22,020	**15.3**
3/16/2009	10,280	6,598	16,878	**11.7**
3/17/2009	12,815	7,642	20,457	**14.2**
3/18/2009	14,266	8,571	22,837	**15.9**
3/19/2009	14,035	8,455	22,490	**15.6**
3/20/2009	11,437	6,949	18,386	**12.8**
3/21/2009	13,712	8,356	22,068	**15.3**
3/22/2009	13,800	8,592	22,392	**15.6**
3/23/2009	13,665	8,706	22,371	**15.5**
3/24/2009	16,355	10,444	26,799	**18.6**
3/25/2009	13,138	8,558	21,696	**15.1**
3/26/2009	6,789	9,873	16,662	**11.6**
3/27/2009	3,800	10,132	13,932	**9.7**
3/28/2009	10,633	8,296	18,929	**13.1**
3/29/2009	3,283	9,912	13,195	**9.2**
3/30/2009	10,557	9,093	19,650	**13.6**
3/31/2009	12,111	9,092	21,203	**14.7**
Totals:	**343,251**	**280,161**	**623,412**	**14.0**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

April-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
4/1/2009	13,259	9,925	23,184	**16.1**
4/2/2009	10,527	9,323	19,850	**13.8**
4/3/2009	0	11,493	11,493	**8.0**
4/4/2009	0	11,030	11,030	**7.7**
4/5/2009	2,851	7,380	10,231	**7.1**
4/6/2009	10,486	6,321	16,807	**11.7**
4/7/2009	10,956	9,477	20,433	**14.2**
4/8/2009	4,740	4,417	9,157	**6.4**
4/9/2009	0	-	0	**0.0**
4/10/2009	12,612	9,817	22,429	**15.6**
4/11/2009	11,249	9,613	20,862	**14.5**
4/12/2009	10,693	8,989	19,682	**13.7**
4/13/2009	10,254	8,485	18,739	**13.0**
4/14/2009	11,195	9,259	20,454	**14.2**
4/15/2009	802	11,043	11,845	**8.2**
4/16/2009	8,961	8,787	17,748	**12.3**
4/17/2009	12,644	10,358	23,002	**16.0**
4/18/2009	10,452	9,255	19,707	**13.7**
4/19/2009	10,497	9,556	20,053	**13.9**
4/20/2009	9,983	9,208	19,191	**13.3**
4/21/2009	6,337	8,259	14,596	**10.1**
4/22/2009	4,584	10,226	14,810	**10.3**
4/23/2009	6,756	9,878	16,634	**11.6**
4/24/2009	10,144	9,587	19,731	**13.7**
4/25/2009	11,495	10,852	22,347	**15.5**
4/26/2009	9,646	9,282	18,928	**13.1**
4/27/2009	9,148	9,316	18,464	**12.8**
4/28/2009	8,672	9,492	18,164	**12.6**
4/29/2009	7,852	9,086	16,938	**11.8**
4/30/2009	8,570	9,750	18,320	**12.7**
Totals:	**245,365**	**269,464**	**514,829**	**11.9**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

May-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
5/1/2009	8,681	9,841	18,522	**12.9**
5/2/2009	7,400	9,885	17,285	**12.0**
5/3/2009	8,462	11,010	19,472	**13.5**
5/4/2009	7,278	9,554	16,832	**11.7**
5/5/2009	8,227	10,208	18,435	**12.8**
5/6/2009	8,899	9,508	18,407	**12.8**
5/7/2009	7,304	7,962	15,266	**10.6**
5/8/2009	9,033	9,835	18,868	**13.1**
5/9/2009	8,510	9,330	17,840	**12.4**
5/10/2009	8,796	9,486	18,282	**12.7**
5/11/2009	10,642	11,757	22,399	**15.6**
5/12/2009	10,479	8,620	19,099	**13.3**
5/13/2009	10,373	9,977	20,350	**14.1**
5/14/2009	10,144	9,496	19,640	**13.6**
5/15/2009	9,578	8,825	18,403	**12.8**
5/16/2009	10,346	9,336	19,682	**13.7**
5/17/2009	10,682	9,266	19,948	**13.9**
5/18/2009	11,452	9,147	20,599	**14.3**
5/19/2009	12,844	9,736	22,580	**15.7**
5/20/2009	12,520	9,179	21,699	**15.1**
5/21/2009	12,270	8,461	20,731	**14.4**
5/22/2009	13,419	9,207	22,626	**15.7**
5/23/2009	9,710	6,656	16,366	**11.4**
5/24/2009	12,290	8,288	20,578	**14.3**
5/25/2009	13,203	8,530	21,733	**15.1**
5/26/2009	13,624	8,573	22,197	**15.4**
5/27/2009	17,184	10,525	27,709	**19.2**
5/28/2009	13,672	8,431	22,103	**15.3**
5/29/2009	13,669	8,459	22,128	**15.4**
5/30/2009	13,860	9,600	23,460	**16.3**
5/31/2009	21,036	7,136	28,172	**19.6**
Totals:	**345,587**	**285,824**	**631,411**	**14.1**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

June-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
6/1/2009	12,546	8,818	21,364	**14.8**
6/2/2009	12,515	8,851	21,366	**14.8**
6/3/2009	12,076	8,757	20,833	**14.5**
6/4/2009	13,417	9,902	23,319	**16.2**
6/5/2009	11,973	8,956	20,929	**14.5**
6/6/2009	11,701	8,980	20,681	**14.4**
6/7/2009	11,318	8,696	20,014	**13.9**
6/8/2009	10,958	8,450	19,408	**13.5**
6/9/2009	11,564	9,066	20,630	**14.3**
6/10/2009	11,563	9,194	20,757	**14.4**
6/11/2009	11,091	8,942	20,033	**13.9**
6/12/2009	13,903	10,653	24,556	**17.1**
6/13/2009	11,090	8,519	19,609	**13.6**
6/14/2009	5,987	9,111	15,098	**10.5**
6/15/2009	17,529	8,924	26,453	**18.4**
6/16/2009	11,213	8,458	19,671	**13.7**
6/17/2009	11,916	9,026	20,942	**14.5**
6/18/2009	12,144	9,102	21,246	**14.8**
6/19/2009	12,022	9,065	21,087	**14.6**
6/20/2009	13,072	9,849	22,921	**15.9**
6/21/2009	11,172	8,924	20,096	**14.0**
6/22/2009	11,115	9,153	20,268	**14.1**
6/23/2009	10,672	8,839	19,511	**13.5**
6/24/2009	8,666	7,199	15,865	**11.0**
6/25/2009	11,314	9,406	20,720	**14.4**
6/26/2009	11,969	8,708	20,677	**14.4**
6/27/2009	13,747	8,579	22,326	**15.5**
6/28/2009	17,026	10,358	27,384	**19.0**
6/29/2009	8,881	5,465	14,346	**10.0**
6/30/2009	13,610	8,692	22,302	**15.5**
Totals:	**357,770**	**266,642**	**624,412**	**14.5**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

July-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
7/1/2009	13,225	8,622	21,847	**15.2**
7/2/2009	12,218	8,014	20,232	**14.1**
7/3/2009	13,122	8,652	21,774	**15.1**
7/4/2009	12,987	8,628	21,615	**15.0**
7/5/2009	12,825	8,550	21,375	**14.8**
7/6/2009	14,355	9,572	23,927	**16.6**
7/7/2009	13,022	8,618	21,640	**15.0**
7/8/2009	13,316	8,600	21,916	**15.2**
7/9/2009	12,846	8,302	21,148	**14.7**
7/10/2009	10,037	6,612	16,649	**11.6**
7/11/2009	12,837	8,460	21,297	**14.8**
7/12/2009	13,419	8,792	22,211	**15.4**
7/13/2009	13,066	8,531	21,597	**15.0**
7/14/2009	16,422	10,704	27,126	**18.8**
7/15/2009	13,463	8,665	22,128	**15.4**
7/16/2009	2,515	1,237	3,752	**2.6**
7/17/2009	10,600	6,736	17,336	**12.0**
7/18/2009	12,674	8,044	20,718	**14.4**
7/19/2009	13,217	8,484	21,701	**15.1**
7/20/2009	13,221	8,542	21,763	**15.1**
7/21/2009	13,247	8,636	21,883	**15.2**
7/22/2009	8,977	5,720	14,697	**10.2**
7/23/2009	12,275	2,540	14,815	**10.3**
7/24/2009	13,504	6,941	20,445	**14.2**
7/25/2009	14,253	8,353	22,606	**15.7**
7/26/2009	10,555	6,201	16,756	**11.6**
7/27/2009	14,216	8,236	22,452	**15.6**
7/28/2009	14,246	8,354	22,600	**15.7**
7/29/2009	13,912	8,365	22,277	**15.5**
7/30/2009	17,373	10,424	27,797	**19.3**
7/31/2009	13,914	8,213	22,127	**15.4**
Totals:	**395,859**	**244,348**	**640,207**	**14.3**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

August-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
8/1/2009	14,917	8,893	23,810	**16.5**
8/2/2009	7,901	8,686	16,587	**11.5**
8/3/2009	12,147	8,094	20,241	**14.1**
8/4/2009	12,978	8,652	21,630	**15.0**
8/5/2009	12,951	8,634	21,585	**15.0**
8/6/2009	12,933	8,620	21,553	**15.0**
8/7/2009	14,319	9,544	23,863	**16.6**
8/8/2009	12,897	8,603	21,500	**14.9**
8/9/2009	12,440	8,375	20,815	**14.5**
8/10/2009	12,729	8,685	21,414	**14.9**
8/11/2009	11,273	7,692	18,965	**13.2**
8/12/2009	12,606	6,601	19,207	**13.3**
8/13/2009	12,640	8,705	21,345	**14.8**
8/14/2009	9,493	8,500	17,993	**12.5**
8/15/2009	15,957	10,700	26,657	**18.5**
8/16/2009	11,000	7,400	18,400	**12.8**
8/17/2009	12,700	8,600	21,300	**14.8**
8/18/2009	12,669	8,546	21,215	**14.7**
8/19/2009	12,208	7,893	20,101	**14.0**
8/20/2009	12,216	8,476	20,692	**14.4**
8/21/2009	8,810	6,389	15,199	**10.6**
8/22/2009	9,179	7,931	17,110	**11.9**
8/23/2009	13,745	9,674	23,419	**16.3**
8/24/2009	12,034	8,789	20,823	**14.5**
8/25/2009	12,060	8,919	20,979	**14.6**
8/26/2009	12,270	9,038	21,308	**14.8**
8/27/2009	8,868	6,538	15,406	**10.7**
8/28/2009	12,020	8,869	20,889	**14.5**
8/29/2009	12,089	8,865	20,954	**14.6**
8/30/2009	12,203	8,909	21,112	**14.7**
8/31/2009	15,159	10,964	26,123	**18.1**
Totals:	**377,411**	**264,784**	**642,195**	**14.4**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

September-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
9/1/2009	12,037	8,654	20,691	**14.4**
9/2/2009	9,351	8,870	18,221	**12.7**
9/3/2009	12,367	8,876	21,243	**14.8**
9/4/2009	11,402	8,180	19,582	**13.6**
9/5/2009	12,214	8,768	20,982	**14.6**
9/6/2009	12,083	8,762	20,845	**14.5**
9/7/2009	12,064	8,783	20,847	**14.5**
9/8/2009	13,169	9,495	22,664	**15.7**
9/9/2009	12,043	8,645	20,688	**14.4**
9/10/2009	12,598	9,122	21,720	**15.1**
9/11/2009	11,682	8,481	20,163	**14.0**
9/12/2009	9,238	6,711	15,949	**11.1**
9/13/2009	11,874	8,615	20,489	**14.2**
9/14/2009	12,238	7,034	19,272	**13.4**
9/15/2009	12,323	7,114	19,437	**13.5**
9/16/2009	14,809	11,141	25,950	**18.0**
9/17/2009	11,593	8,862	20,455	**14.2**
9/18/2009	11,561	8,846	20,407	**14.2**
9/19/2009	11,624	8,841	20,465	**14.2**
9/20/2009	10,892	8,317	19,209	**13.3**
9/21/2009	11,571	8,450	20,021	**13.9**
9/22/2009	11,815	8,788	20,603	**14.3**
9/23/2009	11,732	8,689	20,421	**14.2**
9/24/2009	13,048	9,569	22,617	**15.7**
9/25/2009	11,872	8,909	20,781	**14.4**
9/26/2009	11,951	8,704	20,655	**14.3**
9/27/2009	11,107	8,104	19,211	**13.3**
9/28/2009	10,452	7,883	18,335	**12.7**
9/29/2009	11,557	8,810	20,367	**14.1**
9/30/2009	11,353	8,715	20,068	**13.9**
Totals:	**353,620**	**258,738**	**612,358**	**14.2**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

October-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
10/1/2009	11462	8,843	20,305	**14.1**
10/2/2009	12857	9,697	22,554	**15.7**
10/3/2009	10912	8,384	19,296	**13.4**
10/4/2009	11503	8,891	20,394	**14.2**
10/5/2009	11143	8,806	19,949	**13.9**
10/6/2009	8486	6,166	14,652	**10.2**
10/7/2009	12295	8,405	20,700	**14.4**
10/8/2009	12420	8,376	20,796	**14.4**
10/9/2009	12345	8,642	20,987	**14.6**
10/10/2009	13645	9,195	22,840	**15.9**
10/11/2009	12011	8,198	20,209	**14.0**
10/12/2009	12240	8,353	20,593	**14.3**
10/13/2009	11614	8,206	19,820	**13.8**
10/14/2009	9195	6,367	15,562	**10.8**
10/15/2009	12182	8,232	20,414	**14.2**
10/16/2009	12232	8,343	20,575	**14.3**
10/17/2009	12110	8,357	20,467	**14.2**
10/18/2009	15489	10,725	26,214	**18.2**
10/19/2009	11695	8,067	19,762	**13.7**
10/20/2009	11849	8,290	20,139	**14.0**
10/21/2009	11889	8,708	20,597	**14.3**
10/22/2009	10353	7,808	18,161	**12.6**
10/23/2009	11171	8,622	19,793	**13.7**
10/24/2009	11283	8,653	19,936	**13.8**
10/25/2009	11376	8,460	19,836	**13.8**
10/26/2009	12863	9,729	22,592	**15.7**
10/27/2009	10800	8,229	19,029	**13.2**
10/28/2009	11336	8,742	20,078	**13.9**
10/29/2009	10941	8,536	19,477	**13.5**
10/30/2009	8123	6,497	14,620	**10.2**
10/31/2009	10748	8,740	19,488	**13.5**
Totals:	**358,568**	**261,267**	**619,835**	**13.9**

November-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
11/1/2009	11397	9,064	20,461	**14.2**
11/2/2009	10935	8,682	19,617	**13.6**
11/3/2009	13040	10,621	23,661	**16.4**
11/4/2009	10337	8,604	18,941	**13.2**
11/5/2009	10980	9,139	20,119	**14.0**
11/6/2009	10320	9,117	19,437	**13.5**
11/7/2009	8433	7,986	16,419	**11.4**
11/8/2009	9147	8,943	18,090	**12.6**
11/9/2009	9127	9,142	18,269	**12.7**
11/10/2009	8551	9,177	17,728	**12.3**
11/11/2009	9037	9,920	18,957	**13.2**
11/12/2009	6183	9,789	15,972	**11.1**
11/13/2009	5869	5,869	11,738	**8.2**
11/14/2009	4393	8,533	12,926	**9.0**
11/15/2009	4453	8,196	12,649	**8.8**
11/16/2009	5465	9,933	15,398	**10.7**
11/17/2009	5108	9,849	14,957	**10.4**
11/18/2009	5783	11,513	17,296	**12.0**
11/19/2009	8217	10,344	18,561	**12.9**
11/20/2009	4563	10,192	14,755	**10.2**
11/21/2009	2811	10,398	13,209	**9.2**
11/22/2009	0	10,975	10,975	**7.6**
11/23/2009	9229	6,994	16,223	**11.3**
11/24/2009	7283	9,258	16,541	**11.5**
11/25/2009	10479	8,818	19,297	**13.4**
11/26/2009	10880	8,524	19,404	**13.5**
11/27/2009	11236	9,310	20,546	**14.3**
11/28/2009	9736	8,767	18,503	**12.8**
11/29/2009	9444	8,841	18,285	**12.7**
11/30/2009	10199	9,197	19,396	**13.5**
Totals:	**242,635**	**275,695**	**518,330**	**12.0**

Appendix B
Daily Pumping Records
2009 Annual Rod and Wire Mill Report

December-09				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
12/1/2009	8731	5,895	14,626	**10.2**
12/2/2009	12278	8,195	20,473	**14.2**
12/3/2009	12569	8,571	21,140	**14.7**
12/4/2009	11985	8,041	20,026	**13.9**
12/5/2009	15026	7,460	22,486	**15.6**
12/6/2009	11591	8,191	19,782	**13.7**
12/7/2009	11860	8,442	20,302	**14.1**
12/8/2009	11077	8,695	19,772	**13.7**
12/9/2009	10722	7,653	18,375	**12.8**
12/10/2009	11880	8,400	20,280	**14.1**
12/11/2009	11665	8,308	19,973	**13.9**
12/12/2009	4278	6,232	10,510	**7.3**
12/13/2009	14323	7,191	21,514	**14.9**
12/14/2009	14942	7,490	22,432	**15.6**
12/15/2009	15037	7,586	22,623	**15.7**
12/16/2009	14901	7,490	22,391	**15.5**
12/17/2009	10562	5,257	15,819	**11.0**
12/18/2009	14852	7,454	22,306	**15.5**
12/19/2009	18066	9,134	27,200	**18.9**
12/20/2009	11382	5,752	17,134	**11.9**
12/21/2009	18608	9,325	27,933	**19.4**
12/22/2009	14574	7,294	21,868	**15.2**
12/23/2009	14563	7,311	21,874	**15.2**
12/24/2009	14420	7,259	21,679	**15.1**
12/25/2009	13447	6,790	20,237	**14.1**
12/26/2009	14668	7,463	22,131	**15.4**
12/27/2009	12334	7,948	20,282	**14.1**
12/28/2009	12997	8,016	21,013	**14.6**
12/29/2009	13928	8,525	22,453	**15.6**
12/30/2009	12421	7,669	20,090	**14.0**
12/31/2009	14071	8,781	22,852	**15.9**
Totals:	**403,758**	**237,818**	**641,576**	**14.4**
Annual Total:	**3,985,301**	**2,816,310**	**6,801,611**	**- -**

APPENDIX C

Explanation of Treatment System Down-time

2009 OPERATIONAL HISTORY OF THE ROD AND WIRE MILL INTERIM MEASURE TREATMENT SYSTEM

1/5/09 REPLACED WELL 24 PUMP.

2/10/09 REPLACED WELL 24 AND WELL 27 PUMPS.

2/14/09 WELL 24 RETURNED TO SERVICE FOLLOWING PLC PROBLEM.

3/17/09 WELL 24 RETURNED TO SERVICE FOLLOWING PLC PROBLEM.

3/30/09 WELL 24 RETURNED TO SERVICE FOLLOWING PLC PROBLEM.

4/9/09 SYSTEM DOWN DUE TO POWER FAILURE.

7/17/09 SYSTEM DOWN TO CLEAN REACTOR TANK.

8/21/09 SYSTEM DOWN DUE TO POWER FAILURE.

10/6/09 SYSTEM DOWN TO CLEAN REACTOR AND DISCHARGE PIPING.

10/19/09 SYSTEM DOWN DUE PLC OUTAGE.

11/23/09 WELL 24 RETURNED TO SERVICE FOLLOWING REPLACEMENT OF DISCHARGE HOSE.

12/6/09 SYSTEM DOWN DUE TO PROBLEM WITH pH CONTROLLER.

12/13/09 SYSTEM DOWN DUE TO PROBLEM WITH CAUSTIC FEED SYSTEM.